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ABSTRACT

Master's and doctoral programs in the Florida State University System, along with selected programs at private institutions, were studied, with attention to comparative program costs, number of full-time equivalent students, number of degrees conferred, and relationship of program location and market demand. Included are charts indicating all graduate programs offered at nine public institutions and the seven largest graduate institutions in the private sector. In 1984-1985, Florida had a total of 713 master's degree programs, 482 in the public sector and 231 at the seven private institutions selected for study. At the advanced graduate level, 257 doctoral programs were identified in 1984-1985, 194 in the public sector and 63 in the private sector. Seven recommendations concerning graduate education programs are offered. Appendices include: data on the age and part- and full-time status of beginning and advanced graduate students at state universities for fall 1984; a study by Paul T. Brinkman entitled "Cost Analysis of Graduate Education in Florida: Survey and Assessment;" data on average annual occupational demand for selected occupations in regions of Florida, 1985-1990; and information on market demand addressed in program reviews for specific fields of study. (SW)

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The Postsecondary Education Planning Commission, initially created by executive order in 1980 and subsequently given statutory authority, serves as an advisory body to the State Board of Education on all postsecondary education matters. The Commission is composed of 11 members of the general public and one full-time student registered at a postsecondary education institution in Florida. Members are appointed by the Governor with the approval of three members of the State Board of Education and subject to confirmation by the Senate.

The major responsibility of the Commission is preparing and updating every five years a master plan for postsecondary education. The enabling legislation directed that the Plan "shall include consideration of the promotion of quality, fundamental educational goals, programmatic access, needs for remedial education, regional and state economic development, demographic patterns, student demand for programs, needs of particular subgroups of the population, implementation of innovative educational techniques and technology, and the requirements of the labor market. The capacity of existing programs, in both public and independent institutions, to respond to identified needs shall be evaluated and a plan shall be developed to respond efficiently to unmet needs."

Other responsibilities include recommending to the State Board of Education program contracts with independent institutions; advising the State Board regarding the need for and location of new programs and branch campuses of public postsecondary education institutions; reviewing public postsecondary education budget requests for compliance with the State Master Plan; recommending to the Commissioner of Education proposals for support through the Postsecondary Cooperation Trust Fund; and periodically evaluating the State's 28 regional coordinating councils for vocational education, adult general education and community instructional services.

Further information about the Commission, its publications, meetings and other activities may be obtained from the Commission office, 304 Knott Building, Department of Education, Tallahassee, Florida, 32301; telephone (904) 488-7894.

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POSTSECONDARY EDUCATION PLANNING COMMISSION

Graduate Education Programs in Florida

A Study Prepared in Response to
Specific Appropriation 512A
of the
1985 General Appropriations Act
(Chapter 85-119, Laws of Florida)

1986 - Report 5

February 20, 1986

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EXECUTIVE SUMMARY

In proviso language accompanying Specific Appropriation 512A, The 1985 Legislature directed the Postsecondary Education Planning Commission "to study existing master's and doctoral programs in the State University System. Selected programs in certain independent colleges and universities shall also be included. Such study shall encompass, but not be limited to comparative program cost information, number of FTE students being served, number of degrees conferred and relationship of location of program offering as compared to market demand. The Commission shall provide a report to the Legislature no later than March 1, 1986."

To direct this study, the Commission Chairman created a Program Committee consisting of Harry Smith, Chairman, Margaret Black and John Robert Middlemas. The Committee held four public meetings at which time information was presented on student enrollments, supply and demand comparisons, and program costs and location. National and state studies related to graduate education also were reviewed and discussed.

The Board of Regents, the State Board of Independent Colleges and Universities, and the Independent Colleges and Universities of Florida (ICUF) were involved in the study of graduate education programs. Information not available from the state boards was requested from the institutions which were selected for participation. Information on effective methods for program cost analysis and postsecondary education supply and occupational demand comparisons were solicited from other states as well as from sources within Florida.

The Commission's report on graduate programs provides the initial data base for graduate education programs in the public and independent sectors, and can be used to assist in future graduate program planning and funding. Among the components of the graduate program database is a listing of the existing and proposed master's and doctoral programs in Florida's public and private postsecondary education institutions. Productivity of each program in terms of the number of FTE students enrolled and degrees conferred is also included. The current demand for programs by students, including those who are place-bound, is also analyzed. The instructional costs for selected programs in the public and independent sectors are compared. Finally, the report addresses the relationship of the location of the program offering to market demand and the relevancy of market demand information for making decisions on the location of advanced graduate programs.

Graduate education programs in Florida are described for the nine state universities of the public sector and the seven largest graduate universities in the independent sector: the University of Miami, Nova University, Barry University, Florida Institute of Technology, Stetson University, St. Thomas University, and Jacksonville University.

In 1984-85, Florida had a total of 713 master's degree programs -- 482 (68%) in the public sector and 231 (32%) at the seven independent institutions selected for participation in this study. It should be noted that master's degree programs are also available to a limited extent at other independent institutions, such as Rollins College and the University of Tampa; however, given the legislative charge to examine graduate programs at selected private institutions, they were not included in the present study.

At the advanced graduate level, 257 doctoral programs were identified in 1984-85 -- 194 (75%) in the public sector and 63 (25%) in the private sector. Although master's degree programs are offered at all seven institutions, only four (Miami, Nova, FIT and Barry) have doctoral degree programs, with the University of Miami providing 67 percent of the total number of programs. The latest State University System academic programs inventory (December 1985) and a graduate programs inventory for selected institutions in the independent sector are contained in Tables 13 and 14 in Chapter III.

The Commission's Master Plan for Florida Postsecondary Education recognized the need for comprehensive planning for growth and other changes in graduate programs. Accurate and timely information on student enrollment trends, patterns of graduate placement, and labor market conditions allows the State to anticipate changing circumstances in graduate education and to respond actively and positively.The Master Plan emphasized that resources for graduate programs must be used selectively due to the high cost of advanced education and the need to avoid any unnecessary duplication. The quality of graduate education and the cost effective use of resources largely depend upon the presence of distinctive institutional roles through which each institution is committed to a certain scope of activities.

A comparison of the growth in the number of graduate degree programs in the State University System (Table 11) shows that between 1972-73 and 1978-79, the number of master's degree programs increased 53 percent in the public sector. In contrast, between 1978-79 and 1984-85 the increase in total number of master's degree programs slowed to a 12 percent increase. At the doctoral level, between 1972-73 and 1984-85, there was a 56 percent increase in the number of doctoral degree programs. However, during this 12 year span, it should be noted that growth occurred only in certain periods. For example, between 1970-71 and 1974-75, the State University System added no new doctoral programs due to a Board moratorium policy.

As stated in the Master Plan, each university has been encouraged to offer a variety of master's level programs. This has been perceived as especially important for place-bound students who are attracted to programs in education, business, computer sciences and other high demand fields. The Master Plan also noted, however, that master's degree programs which require large investments in expensive equipment and facilities, a large number of specialized faculty, or where need and demand are not great, should not be offered in every university.

At the doctoral level, the Master Plan emphasized that few universities both nationally and in Florida possess the combination of quality faculty, facilities, libraries, programs and resources to mount doctoral programs. Also, statewide demand for new doctoral programs in Florida is not expected to increase significantly in the near future. As Florida grows, however, new needs will emerge, as clearly evidenced today in Southeast Florida. As exemplified by the Southeast Florida Plan, further growth in advanced education programs in Florida at all universities should be carefully planned and responsive to demonstrated societal demand. The impact of doctoral programs on similar programs of acceptable quality in the public and independent sector must be considered and, where appropriate, a plan should be developed to coordinate the new program with similar programs in public or independent institutions in the region. As described in the report, a comprehensive and rigorous new program approval process is now available in the State University System to review new program proposals. The substantial strength at the doctoral level of the University of Miami and selected programs in other independent universities are also taken into consideration in the new program approval process.

Alternatives to stand alone graduate programs in Florida have emerged through the creation of cooperative and affiliated programs involving two or more institutions. These programs make effective use of available state support and the existing strengths of the universities, and also provide a greater range of faculty and students with access to doctoral programs.

Existing master's and doctoral programs are reviewed on a regular schedule to determine if student demand and other factors support their continuation. These evaluations are emerging as a part of the coordinated program review process and also take into consideration manpower needs, student outcomes, productivity of the program in terms of students enrolled, program costs, and other appropriate measures. Undergraduate and graduate programs are being reviewed by the Board of Regents on a five-year cycle. State Board of Education Rule 6A-10.39 stipulates that the results of the program reviews must be related to the budgeting process. Resource measures and related standards which determine an adequate level of support for effective and efficient programs are being developed. Budget requests must support program decisions that are in conformity with the distinctive institutional roles as defined by sector master plans.

Two major charges to the Commission by the Legislature in the proviso language for this study were to provide information on FTE enrollment and on master's and doctorate degrees awarded by Florida public and selected independent colleges and universities. To comply with this request, Chapter IV contains several tables of statistical data (Tables 15-21) and commentary on student enrollments and degrees awarded. An overview of the graduate degree and student enrollment trends in the State University System shows that while the number of doctoral degrees awarded by these institutions has remained relatively constant during the past decade, the number of master's degrees awarded declined approximately 16 percent since 1977-78. The discipline of education experienced the majority of the loss - in 1977-78, 2,344 master's degrees were awarded in education; in 1983-84, only 1,443 master's degrees were awarded. This represents a 38 percent decline in six years; however, the number of master's degrees awarded in education increased again in 1984-85 to 1,660. In contrast, the number of doctorates awarded in education remained relatively constant at about 220 per year for this same period. The number of graduate degrees awarded increased in business and management, health professions, and computer sciences at the master's level.

In the State University System, thirty-two (32) percent of the doctorates are awarded in education and 18 percent in the biological and physical sciences. The number of doctoral degrees awarded by the University of Florida fluctuated around 300. At the Florida State University the number of doctorates awarded has decreased significantly; 364 doctorates were awarded in 1971-72; 303 in 1977-78; and 257 in 1984-85. The disciplines of education, fine and applied arts, and the physical sciences accounted for the greatest decrease at Florida State University. During this same period, the University of South Florida's graduate program expanded from the one doctorate it awarded in 1971-72 to 74 in

1984-85. The number of juris doctorates awarded annually by Florida State University and the University of Florida (Table 15) has remained relatively constant since 1977 -- 528 juris doctorates were awarded in 1977-78 and 539 were awarded in 1984-85.

At the master's level, the University of Florida, the Florida State University, Florida A & M University and Florida Atlantic University each awarded fewer master's degrees in 1984-85 than in 1971-72, which can be primarily attributed to a decline in the field of education. The growth of master's programs, including the field of education, was clearly evident at the University of Central Florida, the University of West Florida, the University of North Florida and Florida International University.

An examination of the independent sector shows that 42 percent of the master's degrees awarded in Florida are awarded by the State's seven independent colleges and universities included in this study. If other private colleges in Florida which offer master's degrees are considered in addition to the seven selected for participation in this study, the percentage in the private sector would be approximately 50 percent. Thirty-six percent of the doctorates in Florida are being awarded by four of the independent universities selected for participation in this study (Miami, FIT, Nova and Stetson). Twenty percent of the total graduate FTE enrollment was reported by independent institutions; however, this percentage is very low as the FTE enrollment for several large graduate programs at Nova University was not reported.

The number of master's degrees offered by the independent sector has almost doubled from 1,810 master's degrees awarded by these seven institutions in 1979-80 to 3,294 in 1984-85; 860 doctoral degrees were awarded by these same institutions in 1979-80 and 1,101 were awarded in 1984-85. In contrast, during this same period, the State University System remained about the same in the number of doctorates awarded and decreased in the number of master's degrees awarded.

At the master's level, most degrees are granted by the private sector in two discrete disciplines. In 1984-85, 41 percent of the master's degrees awarded by the seven independent institutions were in business and management; 32 percent were awarded in education. The next closest discipline was computer and information sciences which awarded six percent of the master's degrees in 1984-85. The 1,338 master's degrees awarded by independent institutions in business and management represent 66 percent of the total master's degrees awarded in this discipline in Florida in 1984-85. Similarly, the master's degrees in education awarded by the independent sector in 1984-85 represent 39 percent of the state total. These colleges and universities account for a disproportionately small percentage of graduate degrees in most of the liberal arts fields -- letters, mathematics and the sciences.

At the doctoral level, a notable statistic for Florida's independent institutions is the 106 Ph.Ds. awarded in psychology during 1984-85; this number represents 64 percent of the total Ph.Ds. in psychology awarded in the State. While the juris doctorate represents 45 percent of the total doctorates granted by the State University System in 1984-85; the juris doctorate represents 67 percent of the total doctorates granted in the independent sector. Fifty-eight (58) percent of the total juris doctorates awarded in Florida in 1984-85 were awarded by the independent sector. Specifically, 736 juris doctorates were awarded by Florida independent universities in 1984-85 out of a total of 1,102 doctorates granted. In all other fields, however, independent institutions accounted for considerably fewer doctorates than the State University System.

Legislative proviso language directed that the graduate education programs study also include comparable cost information for selected programs in the public and independent sectors. Seven programs were selected for this purpose (Table 22). To facilitate this legislative charge, the Commission contracted with Dr. Paul Brinkman of the National Center for Higher Education Management Systems (NCHEMS). Dr. Brinkman designed a survey instrument for generating program cost data and analyzed the results of the survey. In addition, the consultant conducted an analysis of the current method for determining cost data in the public sector. The consultant's report and survey instrument are contained in Appendix B. A discussion of the major findings of Dr. Brinkman's report and the implications of the analyses are presented in Chapter V.

The difficulty of obtaining accurate and reliable cost data on graduate education should not be underestimated. For example, master's and doctoral level education can occur at the same time in the same classroom with the same instructor, and students from different disciplines are frequently enrolled in the same class. In addition, research and graduate education costs are strongly linked and are often difficult to separate.

The collection of comparative cost data adds to the complexity. Differences in accounting procedures, reporting practices, program content, and institutional structures such as multiple campuses undermine the validity of cost comparisons among institutions. Despite the inherent problems, however, a comparative framework is a preferable alternative to having no basis at all for cost evaluation.

With the above considerations in mind, the Commission embarked on a prototype cost analysis of selected graduate programs in public and independent institutions. The objectives of the survey instrument and analysis were threefold: (1) to illustrate some aspects of graduate program costs, (2) to assess the ability of selected institutions to supply particular data elements on program costs, and (3) to comply with the legislative charge of providing comparative costs of several graduate programs in both the public and private sectors.

The cost analysis survey was designed to provide insights into differences in expenditures among the selected graduate programs, and to isolate potential problems for generating comparable cost data for graduate education programs. Unfortunately, as described in Chapter IV, the survey demonstrates a number of data gathering and reporting problems in the State that threaten the validity and comparability of some of the data.

In full consideration of these problems and concerns, the data show that costs on a credit hour basis can vary greatly among institutions and among programs within institutions. Insights are provided on faculty productivity and rate of pay. In addition, an estimate of program capacity is provided which, in conjunction with data on credit hours actually produced, yield utilization rates that can help explain current costs and the probable direction of future costs. These data also provide the basis for obtaining cost information which the State can use when an independent institution submits a proposal to the State for a program contract.

The second part of the cost comparisons study involved an analysis of the cost data currently supplied by the Board of Regents. In interviews with several individuals in state government, shortcomings in the current cost data were highlighted. In particular, considerable frustration was noted with the use of a graduate classroom versus thesis/dissertation breakout rather than the more conventional master's versus doctoral distinction. The primary reason for the concern is that the State's new graduate program planning, start-up funding for new public sector graduate programs, and contracting with the private sector are based on the distinction between master's and doctoral programs.

Another problem area is the lack of data on full cost (i.e. direct plus indirect). The reason for this concern is similar to the first issue, in that many of the State's investment decisions are best made on the basis of full costs rather than direct costs. The Board of Regents analysis provides mostly direct cost data with some more aggregated data on indirect costs. The interviews also brought out the need for improved equipment cost data and information on the departmental research component of direct instructional expenditures.

The Commission also compared the cost data available on a regular basis in Florida to annual expenditure data which is available in several other states. On the basis of this analysis, the Commission concurs with Dr. Brinkman's conclusion that while the current cost analysis conducted by the Board of Regents meets much of the State's information needs, significant gaps exist in the data made available to state government on a regular (as opposed to an ad hoc) basis with respect to both needed information and to data made available in other states.

Finally, proviso language directed the Commission to examine "the relationship of location of program offering as compared to market demand." The report notes that forecasting and examining the job market for recipients of graduate degrees is a difficult task which is often plagued with incomplete and inaccurate data. The current mechanisms for predicting market demand have been characterized as not being readily responsive to change. The relevancy of market demand information for making decisions on the location of advanced graduate programs also has been disputed as the recruitment of students and competition for graduates is often national or international in scope rather than intrastate or regional. Compounding the difficulty is the fact that job opportunities fluctuate and can change significantly during the time it takes students to complete a particular program. Also, as noted in past Commission studies and the Master Plan, comparisons of supply and demand can only estimate the complex dynamics of educational supply and market demand. Economic factors such as a recession can alter the market demand in certain professions. In addition, Florida experiences an annual influx of graduates from institutions outside the state. Master's and doctoral recipients also exit the state to accept employment opportunities in other states and countries. With these constraints in mind, however, Chapter VI discusses the sources and uses for supply and demand data in Florida.

Unlike other Commission reports, this study presents a quantitative assessment of graduate education programs in Florida as an initial data base. As such, it does not lead to numerous recommendations. Nonetheless, several recommendations do arise from analysis of the data:

(1) The initial data base for graduate education programs contained in the pages of this report will only be useful if it is kept current. This should be an ongoing responsibility of the Florida Center for Education Statistics (FCES) in cooperation with the Board of Regents, the State Board of Community Colleges and the State Board of Independent Colleges and Universities. Bachelor's degree programs should be added to the initial data base and it should be expanded to include all independent colleges and universities. The data base currently being developed by the State Board of Independent Colleges and Universities will be one component of the final product.

(2) The data base of the Board of Regents should include FTE student enrollment data for master's and doctoral programs. Although the current system of generating FTE data by discipline for graduate classroom and thesis/dissertation was designed to be congruent with the Board of Regent's cost study, FTE student information for master's and doctoral programs would be more appropriate for comparison purposes and much more useful at the state level.

(3) As recommended in the Commission's Study of Postsecondary Education Information, when the initial education information components of the FCES data system are essentially complete and available in comparable form, demographic and labor market data should be added to the system. Several weaknesses and voids were noted in the Florida Occupational Information System (FLOIS) especially as they relate to graduate education programs. A new MIS system should not be created; the current FLOIS system should be used as an initial base, and augmented and modified to support more usefully the planning and policy analysis functions of state government. Other sources of supply and demand data in Florida should also be considered, including health manpower supply and demand forecasts currently being developed by the Department of Health and Rehabilitative Services.

(4) As stated in the Master Plan, the new program approval and program review processes should continue to serve as the monitoring mechanisms to determine if the State has too many or too few graduate programs. These processes must be sensitive to the number of graduate programs offered to accommodate student, employer, and societal demand. New graduate education programs should be carefully planned and responsive to demonstrated need. Existing graduate programs should be reviewed through the coordinated program review process, and programs should be strengthened when warranted. When the demand for an existing program is slight, support for weak programs should be discontinued.

(5) Two modifications should be made in the Board of Regent's annual expenditure report: (a) the report should distinguish between master's and doctoral costs, and (b) full cost data (both direct and indirect costs) should be included. These modifications should be carefully planned and implemented in collaboration with the Florida Center for Education Statistics and state and institutional representatives. Such an effort should include case studies as a means of establishing the most

appropriate procedures, consultation with other states that regularly solicit full cost data, and the careful preparation of guidelines and conventions for institutions to follow in generating the raw data.

(6) Program cost comparisons should be an integral part of the Board of Regents academic program review process. To generate credible data and facilitate such comparisons, an instrument similar to that utilized in the current study should be incorporated before each program is reviewed on the scheduled five-year cycle. The use of a standard instrument for this purpose by the public sector will also strengthen the validity of the data generated when program cost comparisons are solicited for use in the contract process with independent colleges and universities.

(7) The prototype instrument developed by the National Center for Higher Education Management Systems (NCHEMS) should be revised by the Postsecondary Education Planning Commission, based on the information received in this study, and utilized by independent institutions on an ad hoc basis when an independent institution submits a proposal to the State for a program contract, or whenever public and private cost comparisons are needed.

This technical report contains an array of statistical information related to public and independent graduate education programs in Florida. Tables and charts for displaying and updating this information have been included, and certain issues that emerge from the data relating to program planning and program costs have been identified.

The Commission recognizes that the quality of graduate education afforded in Florida cannot be depicted by numbers alone; but quantitative data is essential for use in state planning. Much numerical information on student enrollment and graduate degree statistics is included in the pages of this report; this was done to be consistent with the legislative charge and the purpose of the report. In some cases, reference is made to additional information and statistical analyses which are available from the Commission offices as needed.

I. INTRODUCTION

In proviso language accompanying Specific Appropriation 512A, the 1985 Legislature directed the Postsecondary Education Planning Commission "to study existing master's and doctoral programs in the State University System. Selected programs in certain independent colleges and universities shall also be included. Such study shall encompass, but not be limited to comparative program cost information, number of FTE students being served, number of degrees conferred and relationship of location of program offering as compared to market demand. The Commission shall provide a report to the Legislature no later than March 1, 1986."

Commission Approach

To direct this study, the Commission designated a Program Committee comprising Harry Smith, Chairman, Margaret Black and John Robert Middlemas. The Program Committee was also assigned to study the configuration of public postsecondary institutions in Southeast Florida. The Committee held four public meetings on October 7, November 12 and 13, and December 11, 1985. At these meetings information was presented on student enrollments, supply and demand comparisons, and program costs and location. National and state studies related to graduate education also were reviewed and discussed.

The Board of Regents, the State Board of Independent Colleges and Universities, and the Independent Colleges and Universities of Florida (ICUF) were involved in the study of graduate education programs. Information not available from the state boards was requested from the institutions which were selected for participation. Information on effective methods for program cost analysis and postsecondary education supply and occupational demand comparisons was solicited from other states as well as within Florida.

Related Commission Activities

The Commission's Master Plan for Florida Postsecondary Education recognized the need for comprehensive planning for growth and other changes in graduate programs. Accurate and timely information on student enrollment trends, patterns of graduate placement, and labor market conditions allows the State to anticipate changing circumstances in graduate education and to respond actively and positively.The Master Plan emphasized that resources for graduate programs must be used selectively due to the high cost of advanced education and the need to avoid unnecessary duplication. The quality of graduate education and the cost effective use of resources largely depend upon the presence of distinctive institutional roles through which each institution is committed to a certain scope of activities.

Master's degree programs have been duplicated in different areas of the State when the advantages of duplication are significant (for example, in programs which should be accessible to place-bound students). The Master Plan noted, however, that duplication of master's programs should be minimized at the regional level, and in cases in which need and demand are not great, or where programs require expensive equipment and facilities to operate, at the statewide level. In contrast, advanced graduate and doctoral programs must be regarded as statewide resources and developed selectively. These programs cannot be offered in all institutions. Relatively few universities possess the combination of quality faculty, libraries and program resources to mount doctoral programs.

Florida now has three public universities whose programs serve statewide needs and which have degrees at all levels, including some professional schools and doctoral programs in a broad range of disciplines. In the independent sector, the University of Miami offers options for advanced graduate education to Floridians across the State. Through the 1983 Southeast Florida Plan developed jointly by the Commission and the Board of Regents the expansive growth in Southeast Florida was recognized. This Plan provided a pattern for managing the future development of graduate and professional programs at Florida International University and Florida Atlantic University, while using existing programs at independent universities. The Southeast Florida Plan requires each of the participating universities to define areas of specialization and quality programs. This document was further developed in the 1985 Comprehensive University Presence Plan by the Board of Regents.

As Florida grows, new needs will emerge which may require new programs. A process has been established by the Commission to advise the State Board of Education regarding the needs for and location of new programs. Criteria specified in the Master Plan to be considered before new programs are established include clear documentation of need and evidence that existing programs cannot meet the demonstrated needs; sufficient current and projected employment opportunities for graduates; and sufficient current and projected student demand. The Master Plan also recommended that new programs should not be implemented nor existing programs expanded until it can be shown that the same objectives cannot be met more efficiently and effectively through the use of educational technology.

Formal authority for approving new academic programs at state universities rests with the Board of Regents. Section 240.2095, F.S., outlines the criteria for approval to be used by the Board including avoidance of duplication, cooperation with other institutions, and consistency with the state master plans. A three step process has been implemented by the Board for this purpose: (1) authorization to study the feasibility of a new degree program, (2) authorization to plan a new degree program, and (3) authorization to implement a new program. The Commission's role in the area of program approval is to review the Board's documentation for permission to plan a new program. Should the Board take action which is contrary to the findings of the Commission regarding a new program, the Commission's analysis is made available to the State Board of Education for their consideration during the budget development and submission process.

Existing master's and doctoral programs are also reviewed on a regular schedule to determine if student demand and other factors support their continuation. These evaluations are emerging as a part of the coordinated program review process and also take into consideration manpower needs, student outcomes, productivity of the program in terms of students enrolled, program costs, and other appropriate measures. Undergraduate and graduate programs are being reviewed by the Board of Regents on a five-year cycle. State Board of Education Rule 6A-10.39 stipulates that the results of the program reviews must be related to the budgeting process. Resource measures and related standards which determine an adequate level of support for effective and efficient programs are being developed. Budget requests must support program decisions that are in conformity with the distinctive institutional roles as defined by the sector master plan.

The Commission's report on graduate programs in the pages which follow constitute the initial data base for graduate education programs in the public and independent sectors, and can be used to assist in future graduate program planning and funding. Among the components of the graduate program data base is a listing of the existing and proposed master's and doctoral programs in Florida's public and private postsecondary education institutions. Productivity of each program in terms of the number of FTE students enrolled and degrees conferred is also included. The current demand for programs by students, including those which are place-bound, is also analyzed. The instructional costs for selected programs in the public and independent sectors are compared. Finally, the relationship of the location of the program offering to market demand and the relevancy of market demand information for making decisions on the location of advanced graduate programs are addressed.

II. GRADUATE EDUCATION

Growth, Diversity, and Market Demand

This chapter provides background information on graduate education in the United States. The growth and diversity of the doctorate and master's degrees are addressed. State and institutional comparisons are included as is information on graduate enrollment patterns. The market demand for graduate degree recipients is also discussed.

A Historical Perspective on the Doctorate

Graduate education in the United States has had a short history. Unlike the baccalaureate degree, first awarded in the United States by Harvard 350 years ago, it was not until 1861 that a Ph.D. was awarded in this country. While Yale University is credited with awarding the first Ph.D., Johns Hopkins University established graduate education as a standard function of American universities. From its inception in 1876, the Ph.D. at Johns Hopkins greatly influenced the practices at other universities (Brubacher and Rudy, 1976).

Graduate study began in the United States primarily as a response to the influence of the German universities. Through the late 1800's, German universities and their rigorous advanced education programs were highly acclaimed by the academic world. By the end of the 19th century, thousands of Americans had traveled to Germany for advanced study and returned with a desire to incorporate the German system into American higher education.

Changes in the American society also created new demands for higher education. During the first 200-250 years of its existence, the function of the American college was teaching. After 1850, as America began to develop into an industrial society, needs for scientific research were expanded. During this industrial development, the concepts of research and service became functions of the university as America began to depend on its universities for the expertise in professional and scientific fields needed to lead the way for economic development. American universities responded to these needs by creating graduate schools capable of producing technical experts and advanced scientific knowledge.

A doctoral degree (Ph.D.) became the highest earned degree conferred by a university. The primary goal of a doctoral program is to train individuals in the art of research and in the process of advancing knowledge in an extremely narrow area of specialization. This is accomplished through a mixture of class work in small groups and seminars and independent study. At the end of the process, a student writes a dissertation resulting from a research project in which the student is in a one-to-one relationship with a senior faculty member. Extensive support facilities and services are necessary in the form of libraries holding a wide range of current periodicals, and science and engineering laboratories containing the latest and most refined equipment. Few programs can stand alone. Most doctoral programs require vigorous support from related disciplines. Physics, for example, must be supported by a strong mathematics department.

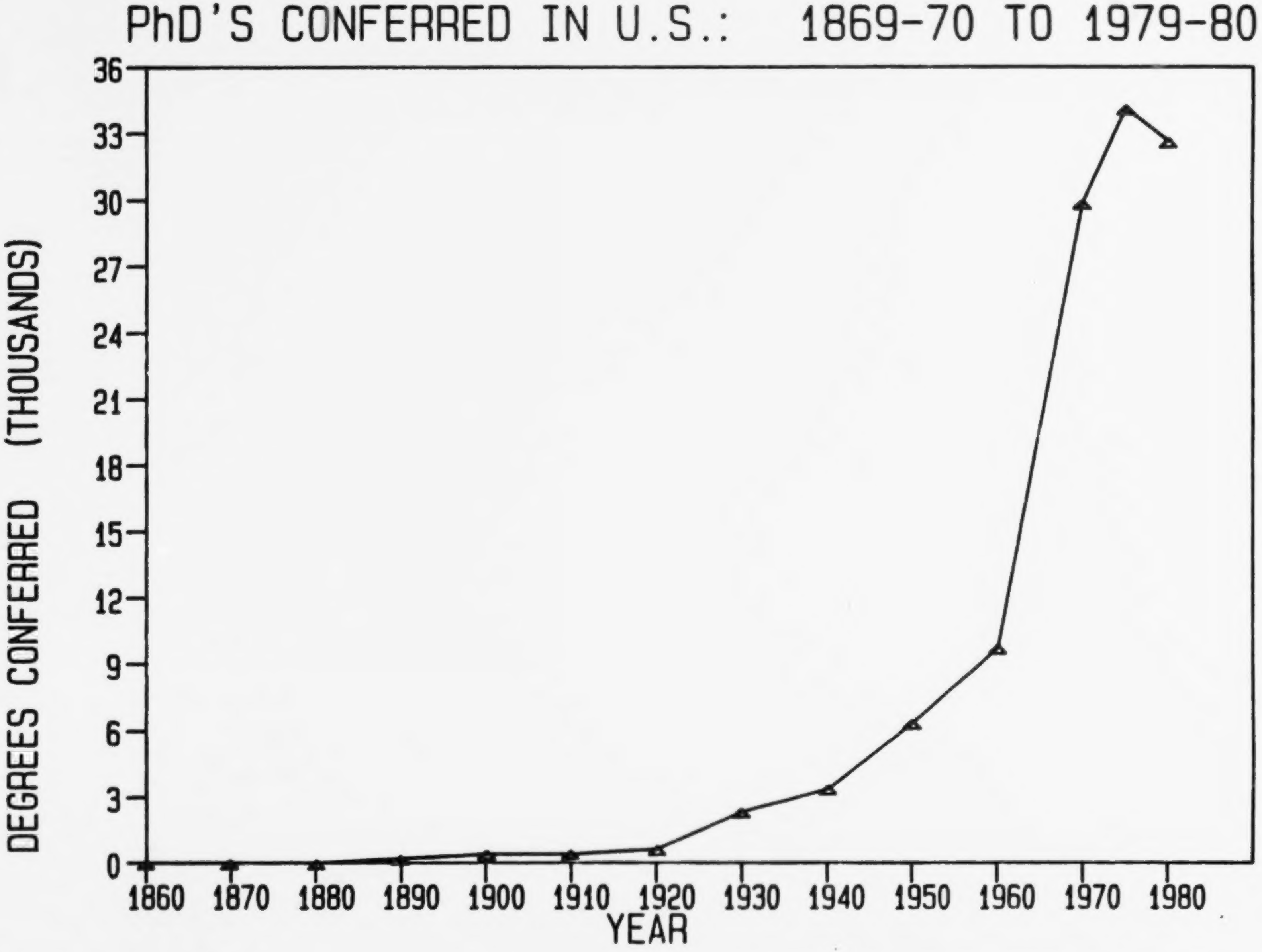
Graduate education in the United States grew slowly at first. The concept of a graduate school of arts and sciences was created in the 1880's and the period from 1900 through 1915 was marked by increased standardization in the requirements for a doctorate. The largest growth period for awarding of Ph.D.s came after 1910. The number of institutions offering the Ph.D. increased to handle the large increase in graduate students. In 1900, there were at least 15 major graduate schools in America and 382 Ph.Ds were granted. By 1960 more than 175 institutions granting Ph.D.s. were in existence and over 9,800 Ph.Ds were awarded.

As can be seen in Figure 1, the number of Ph.D.s awarded by universities in the United States increased significantly from 1869 through 1969, with the number of Ph.D.s awarded experiencing its greatest increase between 1960 and 1970. This increase during the post-Sputnik era may be attributed primarily to increased federal funding for higher education. Beginning in the 1970's the number of Ph.D.s awarded annually began to subside. The peak in degrees awarded nationally occurred in 1972-73, and was followed by a series of declines before leveling in 1978-79. Recent changes in the number of doctorates granted by discipline is addressed in the next section.

Almost all of the doctorates awarded in the arts and sciences are Ph.D.s; efforts to replace the Ph.D. in the arts and sciences have not been successful. Each year a large number of professional doctorates are awarded in applied fields such as education, library science and social work. While it varies from discipline to discipline, most institutions give the Ph.D. for research and the professional doctorate for practice. Despite its diversification, the prestige of the Ph.D. has lasted. The Ph.D.s in engineering, library science and business administration continue to be more popular than the Doctor of Engineering, the Doctor of Library Science or the Doctor of Business Administration. In certain applied disciplines little difference exists in the curriculum requirements for the different types of doctorates. In education, for example, a 1971 survey of doctoral programs at over 100 postsecondary education institutions reported only minor differences in the curricula and course requirements of the Ed.D. and Ph.D. programs. According to these study results, the primary difference in the two programs is the foreign language requirement within the Ph.D. program (Harris et al, 1980).

Advanced degrees in law, medicine, theology, and related fields have maintained much of their original professional basis. Professional associations often set, or at least guide, the curriculum and degree standards in the graduate program. Each first professional education program has developed an equivalent to the Ph.D. as the terminal degree in the field of study. This development represents tremendous changes in the academic learning requirements for certification or licensure to practice in these professional fields. Prior to the development of the professional graduate school in the United States most professionals were allowed to practice after completing a basic study program and internship. During the 1820s law and medicine schools began requiring baccalaureate degrees and other academic admission requirements. However, this was not rigidly enforced until the early 1900's when applications exceeded admissions and the professional schools were able to set stringent standards for admission. During the first two decades of the 20th century professional schools of law and medicine became post-baccalaureate institutions. The M.D. (Doctor of Medicine) and the J.D. (Juris Doctorate) became the professional degrees representing advanced study in the specific profession. Other doctorates in the health sciences (Doctor of Veterinary Medicine; Doctor of

FIGURE 1



SOURCE: U.S. Department of Education, National Center for Education Statistics
Biennial Survey of Earned Degrees Conferred, 1984

Osteopathy; Doctor of Optometry) have been modeled after the Doctor of Medicine degree. Because of the extensive studies done by the Commission in the comprehensive health professions education plan, graduate education programs in the medical areas are not addressed in the current study.

Recent Trends in the Number of Doctorates Granted

The National Research Council (NRC) annually conducts a survey of earned doctorates. The results of the latest survey indicate that a total of 31,190 research doctorates were awarded by universities in the United States during the 1982-83 academic year. This is approximately one percent more than were granted in 1981-82. This small upward movement represents a continuation since 1977 of only slight variations in the total number of doctorates granted annually. Table 1 and Figure 2 provide specific information on the doctorates awarded by universities in selected fields from 1960 through 1983.

As can be seen, between 1960 and 1972, the number of doctorate recipients grew steadily in all fields. In the 1970's, however, the significant growth in the number of doctorates peaked in several areas (e.g., physical and social sciences; humanities) and new Ph.D.s awarded annually in these disciplines have grown only modestly since that time. In life sciences and professional fields, however, a peak was not reached until the early 1980's.

Figure 2 illustrates that the relative proportion of doctorates granted by specific discipline has varied. For example, doctorates in education represent 16 percent of the total doctorates awarded in 1960 and account for approximately 23 percent in 1983. Doctorate recipients in the physical sciences and engineering represented about one-third of the total Ph.D.s in the 1960s and in 1983 accounted for approximately 23 percent of all new doctorates.

TABLE 1

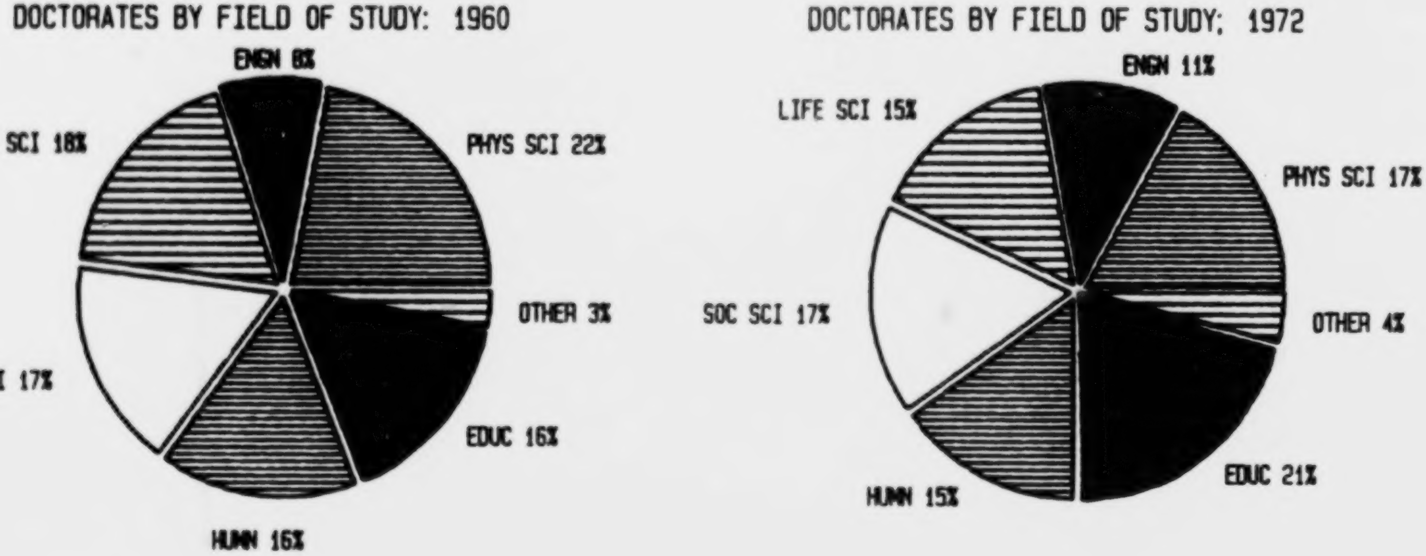
DOCTORATES AWARDED BY UNITED STATES UNIVERSITIES NUMBER BY FIELD OF DEGREE, 1960-83

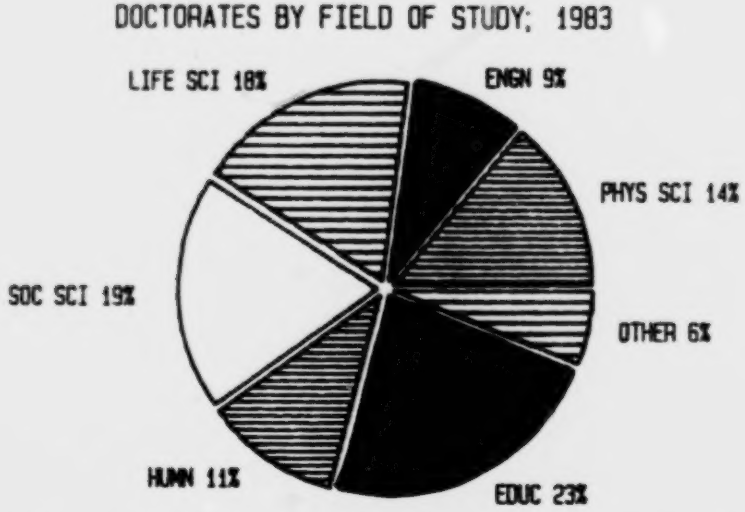
YEAR OF DOCTORATE

FIELD OF DOCTORATE	1960	1964	1968	1972	1976	1980	1983
Physical Science	2152	3115	4652	5538	4509	4111	4424
Engineering	794	1664	2855	3503	2834	2479	2780
Life Sciences	1729	2361	3707	5083	5026	5460	5540
Social Sciences	1668	2258	3495	5470	6214	5855	6055
Humanities	1600	2169	3467	5055	4881	3868	3494
Education	1549	2351	4029	6085	7725	7586	7147
Professional & Other	241	407	731	1309	1757	1656	1750
Total	9733	14325	22936	33043	32945	31015	31190

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File, 1985

FIGURE 2





SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File, 1985

Institutional Comparisons

Table 2 identifies the three Florida institutions ranked in the top 37 nationally in the number of doctorates conferred between 1971-72 and 1980-81. Florida State University ranked 25th, the University of Florida was 32nd and Nova University was 37th. The same survey conducted one year earlier ranked Florida State University as 27th, the University of Florida as 33rd, and Nova University was 45th.

The results of the 1981-82 survey, released in January 1986, listed Florida State University as 26th, the University of Florida 32nd and Nova University 33rd. Should Nova University continue awarding doctorates at its present rate of approximately 370 per year, it will surpass the University of Florida and Florida State University in the number of doctorates awarded for a ten-year period by the mid-1980's.

Of the 61 doctorate degree granting institutions listed in Table 2, 40 institutions are public, nineteen are private, and two are "state related." A total of 29 states were represented in the ranking. The states with the most institutions listed include: New York - seven; California - five; Massachusetts, Illinois and Pennsylvania - four each; Michigan and Florida - three each.

Relationship of Doctorates Granted to Population Growth

The movement of Americans through advanced graduate programs can be observed when one compares changes in the number of U.S. citizen doctorate recipients with a related section of the U.S. population. According to the National Research Council's 1982-83 survey, the median age for a U.S. doctorate recipient is 33 and 85 percent of all U.S. doctorate recipients fall between the ages of 25-34. Figure 3 uses, as a comparison group, the census cohort information of 25-34 year olds who have more than 16 years of education. As can be seen, the U.S. doctorate recipients and population cohort increased proportionately through the early 1970s; however, while the U.S. population increased greatly after 1975, doctorate recipients declined. Although the number of citizens earning doctorates in 1983 was about the same as in the early 1970s, the U.S. population of 25-34 year olds having completed more than 16 years of school has more than doubled. In fact, a far lower proportion of this population earned a doctorate in 1983 than in 1980.

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TABLE 2

INSTITUTIONAL COMPARISONS OF DOCTORATES CONFERRED BY 61 UNIVERSITIES 1971-72 to 1980-81

Institution	Rank order[2]	Total 1971-72 to 1980-81	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
1	2	3	4	5	6	7	8	9	10	11	12	13
University of California at Berkeley	1	7,779	848	891	825	785	794	754	768	709	735	672
University of Wisconsin, Madison	2	7,320	771	805	820	820	780	683	665	668	665	623
Columbia University (N.Y.)[3]	3	6,913	836	782	792	647	696	708	630	585	630	610
University of Illinois, Urbana Campus	4	6,850	826	813	734	708	675	633	590	652	597	622
University of Michigan, Ann Arbor	5	6,823	798	751	743	722	698	705	635	680	569	552
Ohio State University, Main Campus	6	6,298	750	715	653	634	678	598	587	575	598	530
Harvard University (Mass.)	7	5,947	629	746	578	567	620	625	560	533	513	586
Michigan State University	8	5,386	633	696	565	603	535	504	437	484	474	485
Indiana University, Bloomington	9	5,295	608	587	609	590	581	496	436	488	451	436
University of Minnesota, Minneapolis-St. Paul	10	5,233	569	567	572	538	484	511	483	488	485	518
University of California at Los Angeles	11	5,175	588	587	532	487	509	484	486	495	479	559
New York University	12	5,121	606	725	590	482	539	423	437	458	438	432
Stanford University (Calif.)	13	5,098	557	586	522	524	499	490	490	527	458	495
University of Southern California	14	4,610	475	600	487	448	481	456	427	435	424	385
University of Texas at Austin	15	4,602	481	475	452	505	441	458	453	455	432	452
Cornell University (N.Y.)[4]	16	4,310	301	347	488	486	467	449	486	433	419	424
Purdue University, Main Campus (Ind.)	17	4,191	493	441	454	467	420	378	381	374	387	396
Massachusetts Institute of Technology	18	4,131	418	398	460	469	390	379	425	381	387	408
Pennsylvania State University, Main Campus	19	3,987	471	420	372	393	450	382	340	370	385	304
University of Chicago (Ill.)	20	3,938	448	486	486	440	405	380	370	328	298	340
University of Pittsburgh, Main Campus (Pa.)	21	3,890	374	419	410	422	398	386	384	380	383	357
University of Pennsylvania	22	3,681	441	402	412	358	422	322	336	331	335	323
University of Washington	23	3,633	379	448	382	398	365	330	310	342	351	342
University of Maryland, College Park Campus	24	3,562	392	357	338	385	366	370	334	387	310	346
Florida State University	25	3,420	384	383	358	381	300	324	303	343	370	338
Northwestern University (Ill.)	26	3,388	370	392	398	393	333	301	292	301	308	308
Rutgers University, New Brunswick (N.J.)	27	3,382	305	319	282	341	320	386	339	387	323	331
Yale University (Conn.)	28	3,287	348	352	356	389	348	300	322	323	298	295
University of Massachusetts, Amherst Campus	29	3,170	236	342	332	331	334	332	348	316	282	317
University of North Carolina at Chapel Hill	30	3,097	315	317	332	332	299	305	294	300	307	296
University of Iowa	31	3,078	343	347	311	330	324	274	297	308	274	270
University of Florida	32	3,041	300	290	273	353	348	319	298	313	281	295
University of Missouri, Columbia	33	2,824	329	319	329	290	310	280	226	287	254	220
University of Georgia	34	2,812	293	312	299	297	288	258	277	252	268	268
University of Colorado at Boulder	35	2,710	301	288	290	288	295	294	259	241	212	267
Boston University (Mass.)	36	2,708	206	281	228	298	288	243	259	274	338	316
Nova University (Fla.)	37	2,679	3	---	10	288	479	379	352	389	447	332
Texas A&M University	38	2,598	240	241	234	288	243	287	282	257	290	274
University of Kansas, Main Campus	39	2,529	241	267	288	287	242	229	283	252	238	222
University of Tennessee, Knoxville	40	2,488	250	273	274	290	247	268	231	251	218	228
University of Oregon, Main Campus	41	2,493	336	328	272	298	247	233	182	188	201	207
Iowa State University of Science and Technology	42	2,398	277	267	247	207	228	222	208	227	239	256
State University of New York at Buffalo	43	2,339	217	274	237	238	253	213	227	238	234	208
Princeton University (N.J.)	44	2,337	262	218	250	252	247	223	224	242	195	217
Syracuse University (N.Y.)	45	2,316	287	295	288	230	237	236	218	213	182	170
Temple University (Pa.)	46	2,271	183	220	188	251	208	227	290	237	260	230
University of Virginia, Main Campus	47	2,247	181	209	237	239	241	225	231	228	229	227
University of Arizona	48	2,241	212	209	218	218	215	238	232	217	258	225
Johns Hopkins University (Md.)	49	2,182	212	251	238	241	217	199	218	198	184	209
University of Utah	50	2,153	279	224	252	245	207	216	161	188	208	193
University of California at Davis	51	2,104	203	208	228	193	208	201	151	195	247	270
University of Nebraska, Lincoln	52	2,078	208	226	232	219	187	211	188	189	206	222
Wayne State University (Mich.)	53	2,076	229	258	218	220	213	207	183	197	194	158
Duke University (N.C.)	54	2,061	237	193	222	217	209	204	209	175	202	193
Oklahoma State University, Main Campus	55	2,045	230	230	214	213	200	175	203	189	193	198
City University of New York Graduate School and University Center	56	2,019	135	150	151	184	224	248	264	281	190	212
University of Connecticut	57	1,930	204	178	181	193	217	200	189	181	194	205
Case Western Reserve University (Ohio)	58	1,888	245	238	220	207	178	184	165	158	158	137
University of Rochester (N.Y.)	59	1,870	188	208	210	189	183	180	174	188	181	180
Southern Illinois University at Carbondale	60	1,726	168	174	198	172	194	187	168	169	149	151
University of Oklahoma, Norman Campus	60	1,726	241	240	174	208	151	160	128	148	139	139

[1] Includes Ph.D., Ed.D., and comparable degrees at the doctoral level. Excludes first-professional degrees (e.g., M.D., D.D.S., and D.V.M.).

[2] Institutions are ranked by the total number of doctor's degrees conferred during the 10-year period 1971-72 to 1980-81.

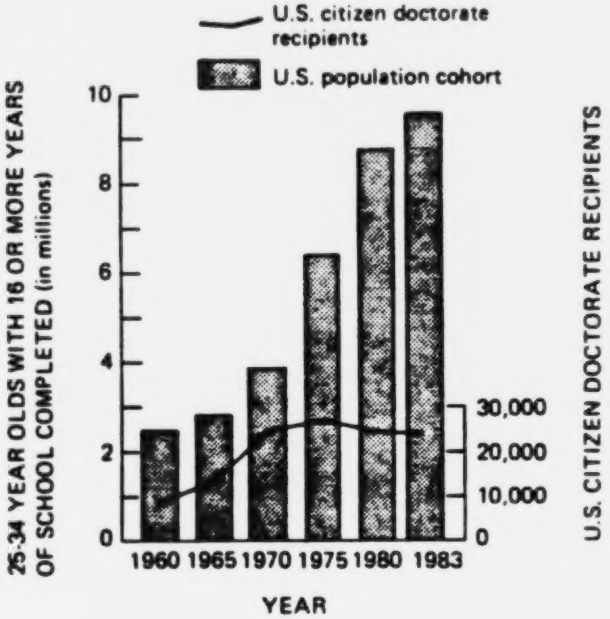
[3] Includes degrees conferred by the Main Division and Teachers College.

[4] Includes degrees conferred by the Endowed and Statutory Colleges.

SOURCE: United States Department of Education, National Center for Education Statistics, special tabulation from surveys of "Earned Degrees Conferred," 1983

FIGURE 3

TRENDS IN THE NUMBER OF U.S. CITIZENS EARNING DOCTORATE DEGREES AND COMPARABLE U.S. POPULATION



SOURCE: National Research Council and U.S. Department of Labor, Bureau of the Census, 1984

Growth of the Master's Degree

Since the early 1870's when Yale began awarding the Master of Arts degree, over 150 different master's degree programs have been developed. Prior to the late nineteenth century, the master's degree was awarded as an honorary degree and also as a degree awarded to students who completed three years of education beyond a baccalaureate degree. The greatest expansion period in the master's degree, both in the number of degrees awarded and in the number of programs offered, has been since 1950. Specialization in many academic fields, the demand for advanced training beyond the baccalaureate, and tremendous increases in the number of baccalaureate degrees being awarded annually all contributed to increases in graduate enrollment in master's programs. Universities responded to the graduate enrollment increase by expanding the number and types of master's programs offered (Brubacher and Rudy, 1976).

Between 1879 and the early 1900's, the Master of Arts degree was the criteria for acceptance into the college professoriate. The development of the graduate school and the advancement of the Ph.D. led to the doctorate replacing the master's degree as the standard degree required for college teaching. At some universities, the M.A. became a consolation degree for those unable to complete a doctorate. At other universities, the master's degree program became a preparatory program for the doctorate. And, for some fields of study, the master's degree became, and continues to exist as, the terminal program degree and the standard of advanced learning.

The large number of master's degree programs and the vast array of differences in the requirements for completing a master's degree have led to confusion about the standards and the academic significance of the degree. Specialization has increased the types as well as the quantity of master's degrees conferred. Professionals in emerging fields of study have often developed highly specific master's degree programs which parallel the traditional Master of Arts program of study. There has been an attempt to establish the discipline-specific master's degree so that it would be afforded all rights, privileges and prestige that the traditional master's degree offered.

Master's degree titles are often discipline specific. Examples of this specialization include the Master of Architecture, Master of Business Administration, Master of Science, the Master of Fine Arts, Master of Music, the Master of Public Administration, and the Master of Education. In many disciplines these titles have replaced the traditional title of Master of Arts and Master of Science. Each of the degrees represents advanced training in a specific discipline and is often required for certification in a given field. Today, however, as in the late 1800's, requirements for completing a master's degree differ from university to university and from program to program within universities. For example, one significant variable in master's degree programs is the extent to which they are research-oriented.

As can be seen in Table 3, the largest number of master's degrees continue to be conferred in the field of education. Figure 4 shows that master's degrees in business and management increased significantly during the 1970's and, in 1982-83, ranked second only to education. One reason for the large volume of master's degrees awarded annually in business and education continues to be the rewards of salary increases and promotion opportunities for advanced degrees in these professions. Between 1977-78 and 1982-83, the number of master's degrees in education, library science and social sciences decreased while master's degrees awarded in business and management, computer science, and in the health professions increased. During this six-year period, the total number of master's degrees awarded annually decreased by 21,700 or 7.0 percent. Table 3 provides an examination of the number of master's degrees awarded nationally by discipline in 1982-83.

TABLE 3

1982-83 MASTER'S DEGREES CONFERRED IN THE UNITED STATES BY GENERAL FIELD OF STUDY

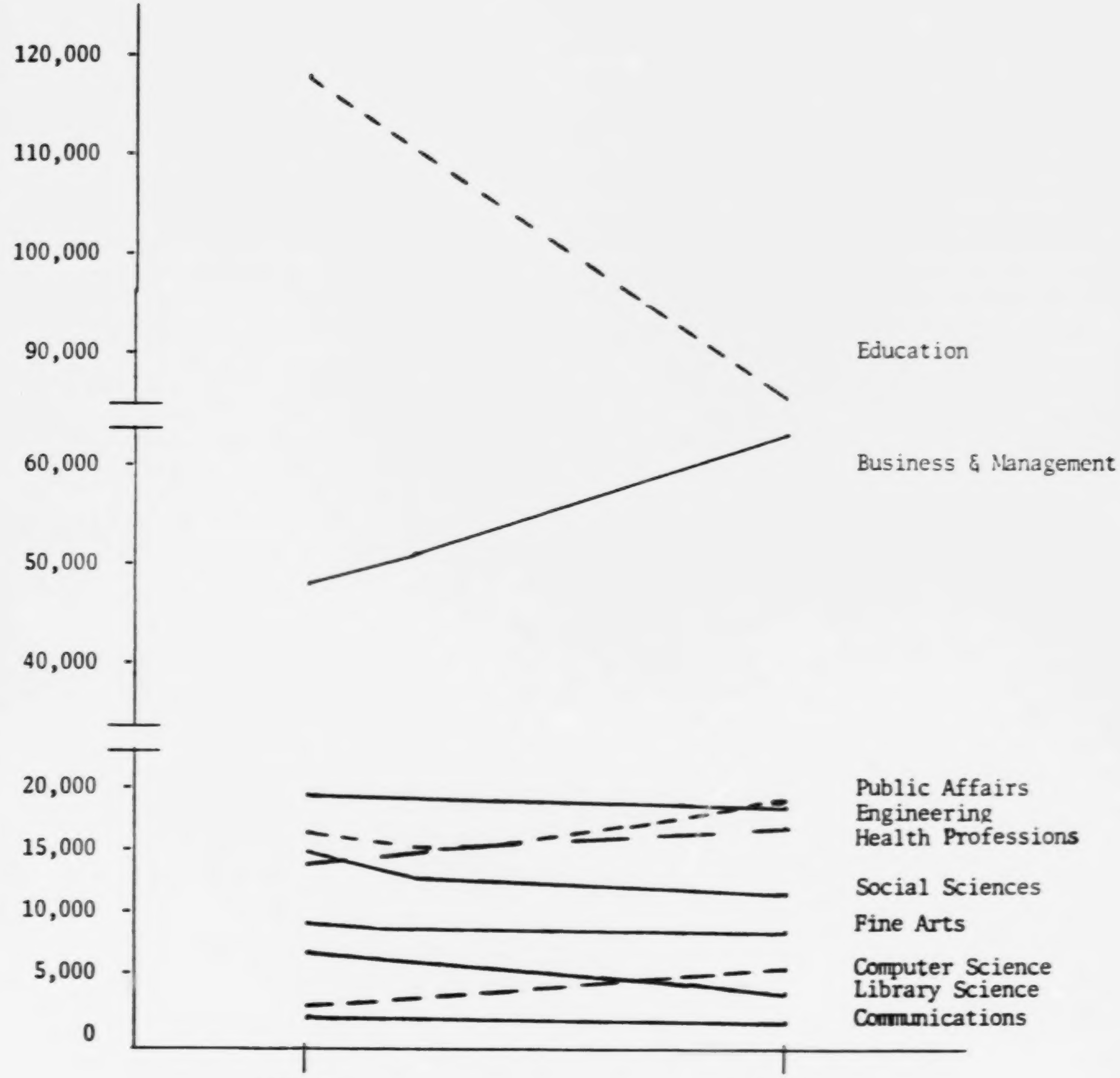
FIELD OF STUDY	NUMBER EARNED	% OF TOTAL
Agriculture/Natural Resources	4,254	1.5%
Architecture/Environmental Design	3,357	1.2
Area Studies	826	.3
Biological Science	5,696	2.0
Business & Management	65,319	22.5
Communications	3,604	1.2
Computer and Information Sciences	5,321	1.8
Education	84,853	29.3
Engineering	19,350	6.7
Fine & Applied Arts	8,742	3.0
Foreign Language	1,759	.6
Health Professions	17,068	5.9
Home Economics	2,406	.8
Letters	11,640	4.0
Library Science	3,979	1.4
Mathematics	2,837	1.0
Physical Science	5,290	1.8
Psychology	8,378	2.9
Public Affairs & Services	18,110	6.2
Social Sciences	11,112	3.8
Interdisciplinary Studies	3,819	1.3
Miscellaneous	2,201	1.0
TOTAL	289,921	*100%

*Differences in total percentage due to rounding

SOURCE: National Center for Education Statistics, 1986

FIGURE 4

MASTER'S DEGREES AWARDED IN THE UNITED STATES BY GENERAL FIELD OF STUDY, 1977-78 THROUGH 1982-83



SOURCE: National Center For Education Statistics, 1986

State by State Comparisons of Graduate Degrees

A 1982-83 state by state comparison of the total number of doctorate and master's degrees conferred (Table 4) reveals that Florida ranked ninth nationally in both categories and the State ranked twelfth in the number of first-professional degrees conferred. The national ratio of baccalaureate degrees to doctorate degrees awarded in 1982-83 was 29.6 to 1, while the ratio for Florida was 30 to 1. The same comparisons at the master's level found the U.S. ratio at 3.3 to 1 and the Florida ratio was 3.7 to 1.

When compared on a regional basis for 1982-83, SREB reported that Florida ranked second to Texas in the number of master's and doctoral degrees conferred and third to Texas and Georgia in the number of first-professional degrees conferred. A review of the 1982-83 ranking of SREB states concerning the percentage of master's and doctoral degrees awarded as a percentage of all degrees awarded at the baccalaureate level and above, found Florida ranked seventh at the master's level and fourth at the doctoral level.

When examining similar data for 1980-81 it should be noted that Florida ranked ninth nationally in the number of master's and doctorates awarded. The State ranked eleventh in the number of first-professional degrees awarded. The national ratio of baccalaureate degrees to doctorate degrees was 28.4 to 1 in 1979-80, while the Florida ratio was 24.5 to 1. The U.S. ratio of baccalaureate degrees to master's degrees was 3.2 to 1 and the Florida ratio was 3.4 to 1.

On a regional basis, Florida ranked second to Texas in the number of master's, doctoral and first-professional degrees awarded in 1980-81. The 1980-81 ranking of SREB states found that Florida ranked seventh at the master's level and first at the doctoral level when the percentage of master's and doctorate degrees awarded is compared as a percentage of all degrees awarded at the baccalaureate level and above.

TABLE 4

DEGREES CONFERRED, BY LEVEL OF DEGREE AND BY STATE
STATE BY STATE COMPARISON (1982-83)

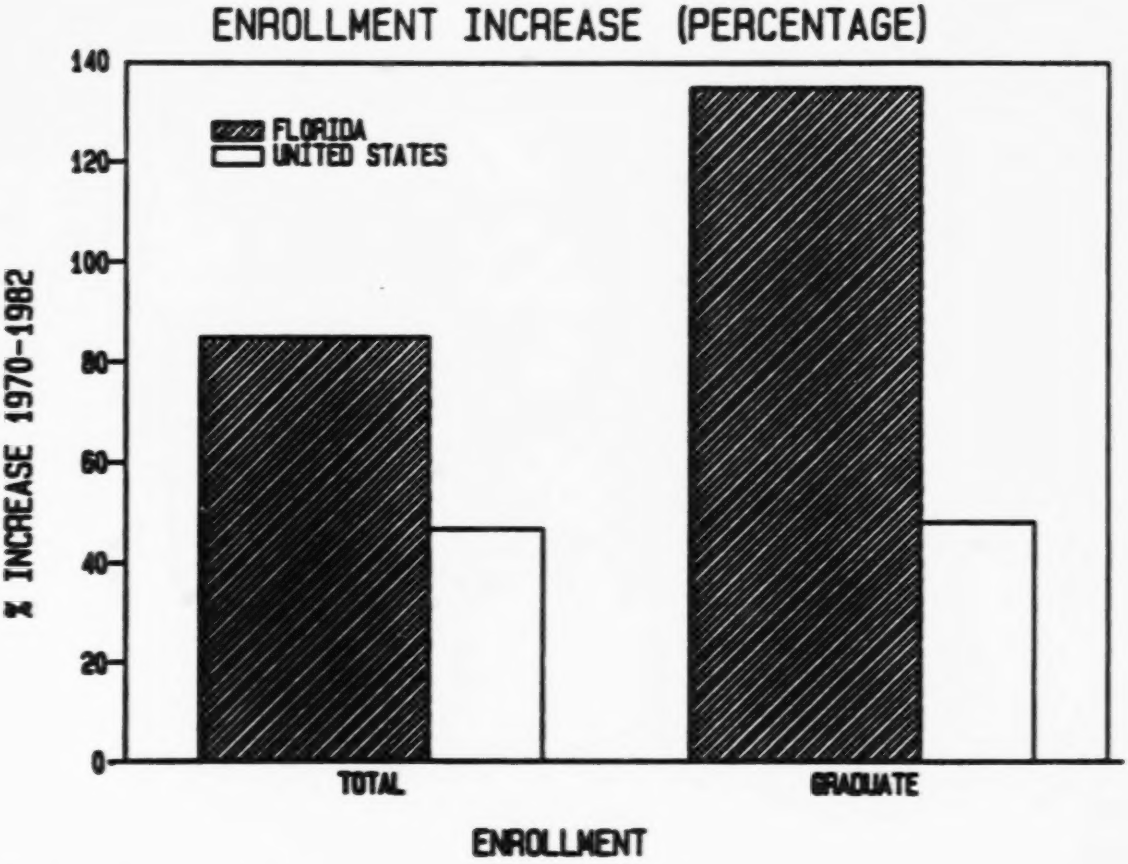
STATE	BACHELOR'S	FIRST-PROF	MASTER'S	DOCTORATES
Alabama	16,217	902	4,819	281
Alaska	671	0	256	5
Arizona	11,797	347	4,020	459
Arkansas	7,282	391	1,794	261
California	85,358	8,457	31,186	4,106
Colorado	15,175	836	4,216	680
Connecticut	13,120	889	5,711	470
Delaware	3,281	0	495	58
District of Columbia	6,914	2,503	5,505	571
Florida	31,184	1,762	8,326	1,038
Georgia	17,920	1,812	6,208	601
Hawaii	3,267	132	992	120
Idaho	3,133	93	633	49
Illinois	46,177	4,468	17,155	1,896
Indiana	26,466	1,555	7,591	1,035
Iowa	14,494	1,544	2,345	489
Kansas	12,483	674	3,078	360
Kentucky	11,591	1,283	3,703	271
Louisiana	15,533	1,559	4,006	280
Maine	4,879	135	535	22
Maryland	16,097	905	5,085	598
Massachusetts	39,171	3,644	13,666	1,822
Michigan	39,083	2,676	13,295	1,383
Minnesota	20,664	1,616	3,499	487
Mississippi	9,020	383	2,174	274
Missouri	22,921	2,543	8,008	567
Montana	4,065	78	686	51
Nebraska	8,054	765	1,676	220
Nevada	1,799	42	457	26
New Hampshire	6,701	122	1,099	67
New Jersey	25,507	1,570	7,222	812
New Mexico	4,506	176	1,680	170
New York	86,357	6,692	32,646	3,181
North Carolina	24,448	1,582	5,465	725
North Dakota	3,936	132	464	49
Ohio	42,937	3,543	12,982	1,492
Oklahoma	12,404	992	3,462	405
Oregon	11,394	1,062	2,884	457
Pennsylvania	56,972	3,902	13,254	1,761
Rhode Island	7,588	63	1,567	178
South Carolina	12,289	658	3,165	207
South Dakota	4,160	120	737	48
Tennessee	16,977	1,538	4,207	582
Texas	54,894	4,331	16,250	1,676
Utah	9,986	382	2,372	371
Vermont	3,885	209	854	28
Virginia	23,090	1,517	5,463	627
Washington	18,139	1,016	4,328	573
West Virginia	7,490	396	2,012	128
Wisconsin	23,185	950	5,130	696
Wyoming	1,381	68	350	49
U.S. Service Schools	3,462	121	1,208	13
TOTAL	**969,504**	**73,136**	**289,921**	**32,775**

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1986

Graduate Enrollment Trends

Between 1970 and 1982 graduate enrollment in Florida as well as the United States increased more than total enrollment in colleges and universities. As shown in Figure 5, Florida's total enrollment in higher education between 1970 and 1982 increased 85.2 percent, or approximately double the national rate. A comparison of Florida and the United States graduate enrollment reveals that Florida's percentage increase was almost three times the national rate between 1970 and 1982.

FIGURE 5



SOURCE: Southern Regional Education Board, 1984

The largest growth in graduate enrollment in Florida occurred between 1970 and 1976. (See Table 5) During this period the State's graduate enrollment more than doubled. Between 1976 and 1982 Florida's graduate enrollment slowed to a 15.4 percent increase. Changes in Florida's graduate enrollment growth can be compared to changes in Florida's total enrollment during the same period (Figure 6). Between 1970 and 1976, the graduate enrollment growth rate was more than double the total enrollment growth rate. In contrast, between 1976 and 1982 this trend reversed as Florida's total enrollment increased at a higher rate than did Florida's graduate enrollment. In other words, while Florida graduate enrollment as a percentage of total enrollment increased between 1970 and 1976, this percentage decreased between 1976 and 1982. This percentage continues to remain well below the national level; as shown in Figure 6, the U.S. graduate enrollment as a percentage of the total enrollment remained the same during the entire period at approximately 10.5 percent.

TABLE 5

FLORIDA'S GRADUATE ENROLLMENT AS A PERCENTAGE

OF TOTAL ENROLLMENT

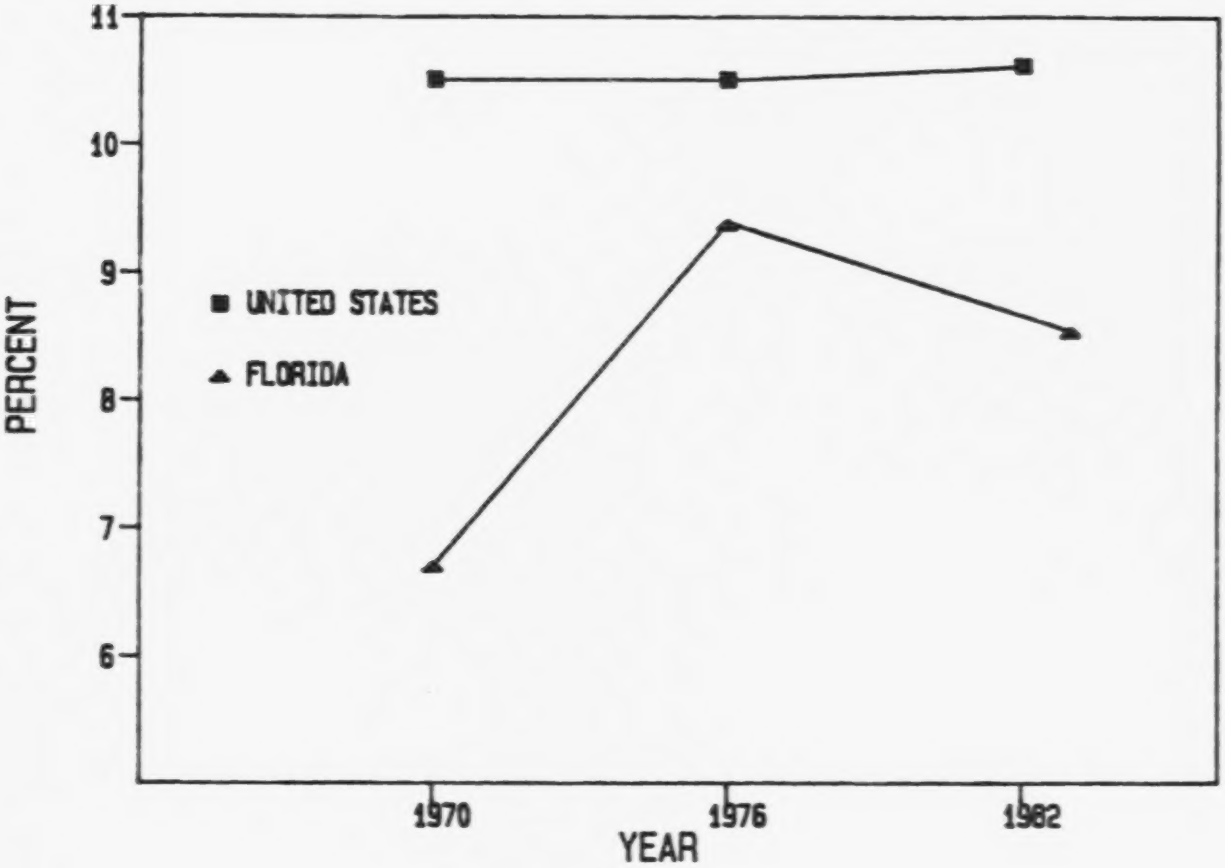
1970, 1976, 1982

	Total Enrollment	Graduate Enrollment	% of Total Enrollment
1970	235,525	15,780	6.7
1976	345,743	32,154	9.3
1982	436,606	37,104	8.5

SOURCE: Southern Regional Education Board, 1984

FIGURE 6

GRADUATE ENROLLMENT AS A % OF TOTAL ENROLLMENT



SOURCE: Southern Regional Education Board, 1984

Projections for the Future

The 1982 National Center for Educational Statistics publication entitled Projections of Educational Statistics to 1990-91 projects that the total number of master's and doctoral degrees awarded will be relatively stable through the 1980's. While total master's degrees awarded annually were expected to increase to 311,000 in 1984-85, a decline to 303,000 is expected by 1990-91. This represents only a two percent increase from the number awarded in 1980-81. Master's degree awarded to men and women are both expected to fluctuate between 151,000 and 152,000 annually. The total number of doctoral degrees granted in the 1980's is projected about 33,000 annually through 1990-91. However, while men accounted for approximately 70 percent of the Ph.D.s awarded in 1980-81, they are projected to represent only 55 percent of those awarded in 1990-91; 15,000 doctorates are projected to be awarded annually to women by 1990-91.

Market Demand for Graduate Degree Holders

Certainly, a relationship exists between graduate education and market demand and any study of graduate education must consider the employment opportunities and job market for graduates. Forecasting the job market for recipients of graduate degrees is a difficult task. Competition for graduates is often national rather than intrastate. For example, of the 249 doctoral degrees awarded by Florida State University between September 1984 and August 1985, only 69 individuals were placed in jobs in Florida. The majority were placed in 30 other states and in 17 foreign counties.

While certain professional associations monitor national trends for graduates in their own discipline, most societies do not engage in this costly service. In addition, job opportunities fluctuate and can change significantly during the time it takes students to complete a particular graduate program. Also, in certain academic areas such as humanities and social services, the market is broad and difficult to predict.

College teaching has been the traditional market for new doctorates. Recent studies show, however, that the job market for college professors in most disciplines in the past few years has been and will remain limited. This is readily documented by the hundreds of applications submitted annually for the few vacant positions in the humanities or social sciences. A recent study on the future of graduate education predicted that all college teaching jobs in English in the 1980's, including those in two-year postsecondary education institutions, could be filled by Ph.D. graduates from 15 graduate schools, and that the teaching jobs in history could be filled by the Ph.D. graduates of only six institutions (Frankena, 1980).

In this section, job market analysis which is conducted at the national level is addressed; specific information on job market analysis in Florida will be discussed in Chapter VI. At the national level, two sources are available to measure job market demand for Ph.D. recipients. First, the National Research Council (NRC) conducts an annual survey of earned doctorates. The latest survey, returned from 96 percent of the approximately 32,000 doctorates granted in 1982-83, requested information on the employment status of graduates as they completed their doctorate. A second source of data is the NRC biennial survey of all Ph.D.s in science and engineering and in the humanities residing in the United States. Information on the 1983 Profile is included. (Note: The

National Science Foundation conducts a biennial survey of doctoral science and engineering graduates which includes demographic and employment characteristics similar to the NRC survey. The NRC data are used here because of the broader classifications used by the Council and also because the NRC survey includes humanities Ph.D.s). The most recent reports on these two surveys are addressed separately below. Unfortunately, similar data on master's degree recipients are not available at the national level.

1983 National Research Council (NRC) Survey of New Ph.D.s

When examining the new doctoral recipients and their relationship to the U.S. labor market, it is important to note that doctoral education in the United States attracts students from every region of the world. The class of 1983 includes Ph.D. recipients from 122 countries. Approximately 20 percent of the doctorate recipients were non-U.S. citizens in 1983 with 16 percent holding only student visas. In fields such as engineering, mathematics and agriculture, the percentage of non-U.S. citizens is considerably higher--54, 36, and 35 percent respectively (NRC, 1983). During the 1959 to 1983 period, nearly all of the U.S. citizens (98%) and non-U.S. citizens holding permanent visas (93%) consistently reported plans to enter the U.S. labor force after receiving the graduate degree, and NRC reported that the percentage of temporary visa holders planning to remain in the U.S. has increased from 43 percent in 1969 to 58 percent in 1983.

TABLE 6

POSTGRADUATION PLANS OF NEW DOCTORATE RECIPIENTS ENTERING THE U.S. LABOR FORCE 1969-1983

	Year of Doctorate			
Postgraduate Plans	1969	1973	1978	1983
Total Doctorates Surveyed	23,833	31,189	28,719	28,716
Seeking Appointment	18.5	23.8	26.4	27.1
Postdoctoral Study	3.1	4.2	4.9	5.4
Employment	15.4	19.6	21.6	21.6
Definite Plans	76.1	69.8	65.8	66.2
Postdoctoral Study	10.2	11.0	13.1	13.8
Employment	66.0	58.7	52.7	52.4
Academe	46.7	42.0	34.1	31.9
Business/Industry	10.3	6.8	8.3	10.5
Government	5.7	6.7	6.4	5.5
Nonprofit	2.1	2.6	3.5	3.6
No Report	1.1	.5	.4	.7
Plans Not Reported	5.3	6.4	7.7	6.7

SOURCE: National Research Council, Doctoral Records File, 1985

Table 6 and Figure 7 as reported by the National Research Council contain statistical data on the postgraduation plans of 1969 through 1983 doctorate recipients entering the labor force. Table 6 shows that the proportion of new entrants still seeking appointments at the time of receipt of the Ph.D. grew steadily from 19 percent in 1969 to 27 percent by 1983. In some fields, however, this percentage is much higher: about 33 percent in humanities, agriculture and social sciences. The percentage seeking postdoctoral study has remained three to five.

The proportions with definite employment commitments in academe decreased from 47 percent in 1969 to 32 percent in 1983 while business and industry employment fluctuated from 10 percent in 1969 to six percent in 1972 and 11 percent in 1983. As would be expected, opportunities in business and industry are greatest for graduates in engineering and physical sciences where approximately one-third found employment in private industry.

In contrast, graduates in the humanities remain heavily dependent on academic appointments for employment. In the 1980s approximately 80 percent of all employed humanities Ph.D.s worked in colleges and universities. According to NRC, an increasing proportion of recent graduates took non-academic jobs because they were unsuccessful in finding college teaching positions.

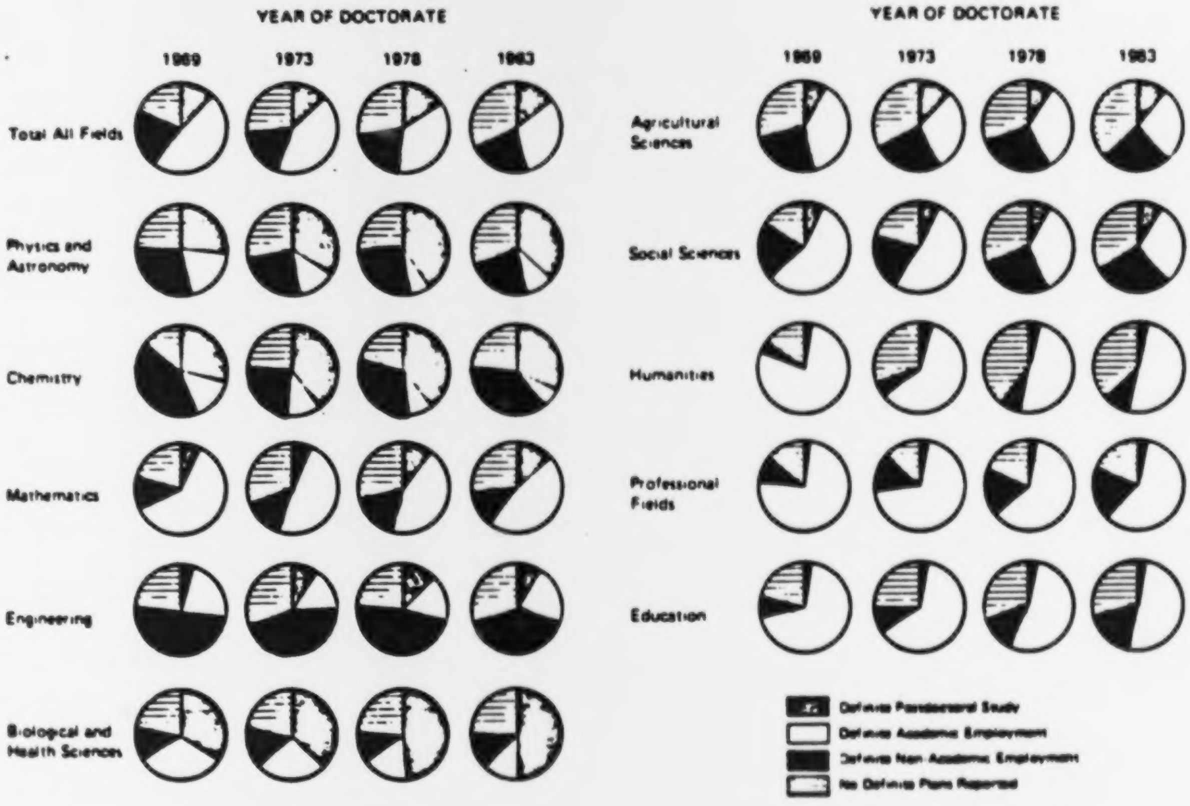
The trend for new doctorates in the sciences is toward post-doctoral study. In 1983, 48 percent of Ph.D. recipients in the biological and health sciences had definite plans for immediate postdoctoral study. In contrast only eight percent of engineering Ph.D.s and three percent of humanities Ph.D.s indicated postdoctorate options in 1983. In education approximately one-half of the 1983 education doctorate recipients indicated academic employment with only about 32 percent finding positions in colleges and universities. While many doctoral recipients consider elementary and secondary schools to be a last resort in terms of career planning, NRC reports that approximately 20 percent of all doctoral degree holders in education are employed in the K-12 sector.

The NRC analysis of postgraduate plans for new doctoral recipients is at the broad program level (For example, education, mathematics, humanities, etc.). The variation in employment opportunities and postdoctoral study within major discipline areas is not generated by NRC except for the field of engineering. The demand for engineering graduates in academe and industry, and the diverse array of engineering fields, prompted the National Research Council to further analyze this professional area.

The results of the 1983 analysis of the engineering discipline are displayed in Table 7. Nine subgroupings of engineers are included. While the figures for the broad discipline of engineering suggest uniformity within the discipline, an analysis of the specific categories of engineers identifies variation among the fields in employment opportunities and market demand. For example, although most doctoral engineers seek employment following graduation, about one-fourth of the engineers in the aeronautical/astronautical and materials area either had postdoctoral study opportunities or were seeking them in 1983. Also, across the engineering fields, wide variation exists as to the proportion of new Ph.D.s securing academic positions -- from 43 percent in industrial to 12 percent in aeronautical. As expected, the most business and industry-oriented fields are chemical, electrical, and engineering science and systems. Also,

FIGURE 7

POSTGRADUATION PLANS OF NEW DOCTORATE RECIPIENTS ENTERING THE U.S. LABOR FORCE BY FIELD OF DOCTORATE 1969-1983



SOURCE: National Research Council, 1985

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TABLE 7
STATISTICAL PROFILE OF ENGINEERING DOCTORATES ENTERING U. S. LABOR FORCE, 1983

	Total	Astro	Chem.	Civil	Elec/ Comp.	Sci Syst.	Ind.	Mtls.	Mech.	Nucl.	Other
Total	2,391	89	323	330	573	84	107	230	328	83	244
Postgrad Plans											
Seeking Appt	27.6	32.6	23.8	34.5	23.0	28.6	31.8	28.3	29.9	28.9	25.8
Postdoc Study	6.5	12.4	7.1	5.2	4.2	6.0	1.9	10.0	11.0	1.2	5.7
Employment	21.1	20.2	16.7	29.4	18.8	22.6	29.9	18.3	18.9	27.7	20.1
Definite Plans	63.2	59.6	68.4	57.3	67.5	63.1	62.6	62.2	61.6	57.8	61.1
Postdoc Study	8.3	13.5	7.4	5.8	6.6	4.8	1.9	17.8	8.2	9.6	9.4
Employment	55.0	46.1	61.0	51.5	60.9	58.3	60.7	44.3	53.4	48.2	51.6
Academe	18.4	12.4	14.9	27.3	17.8	15.5	43.0	2.6	18.0	7.2	23.8
Bus/Ind	29.6	19.1	44.9	15.8	36.8	36.9	11.2	34.8	28.4	30.1	17.2
Government	5.9	11.2	1.2	7.9	5.1	4.8	4.7	5.2	6.1	10.8	9.4
Nonprofit	.8	3.4	.0	.0	.5	1.2	1.9	1.3	.9	.0	1.2
Other	.3	.0	.0	.6	.7	.0	.0	.4	.0	.0	.0
Plans Not Rep	9.2	7.9	7.7	8.2	9.4	8.3	5.6	9.6	8.5	13.3	13.1
Primary Work Act											
Def Employ Plns	1,314	41	197	170	349	49	65	102	175	40	126
Res & Dev	65.1+	73.2	77.2	31.2	75.9	69.4	40.0	85.3	64.6	52.5	59.5
Teaching	20.9	17.1	14.7	37.6	17.5	14.3	47.7	5.9	25.1	7.5	18.3
Administration	1.8	2.4	.5	2.9	1.1	2.0	.0	2.0	.6	5.0	5.6
Prof Services	5.3	2.4	2.0	17.6	1.7	6.1	6.2	1.0	3.4	12.5	7.1
Other	2.5	2.4	1.0	5.9	.9	2.0	1.5	1.0	.0	17.5	5.6
Act Not Rep	4.3	2.4	4.6	4.7	2.9	6.1	4.6	4.9	6.3	5.0	4.0

Classifications: Aeronautical/Astronautical, Chemical, Civil, Electrical/Computer, Engineering Science and Systems, Industrial, Materials, Mechanical, Nuclear, and Other.

+ Vertical percentage based on total engineering doctorate recipients with definite employment plans.

NOTE: Details may not add to totals because of rounding.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File, 1985

doctorate recipients in aeronautical and nuclear engineering choose government employment to a greater extent than other fields, which can be attributed to federal programs in space and defense.

This specific analysis of the field of engineering raises the issue of which other disciplines might display internal variation in employment and postdoctoral study patterns. Unfortunately, this level of specificity in other disciplines is not available.

NRC Survey of Ph.D.s in the United States

Since 1973, the National Research Council has also conducted a biennial survey on the demographic and employment characteristics of all Ph.D.s in science and engineering, and in the humanities. The 1983 survey included information on approximately 470,000 Ph.D.s who received their degrees between 1940 and 1982. Table 8 displays the proportions of the population for each broad area.

TABLE 8

PH.D.s IN THE UNITED STATES IN 1983

Science and Engineering		Humanities	
Total (N = 387,300)	100%	Total (N = 85,200)	100%
Life Sciences	26.6%	English & American Language/Literature	26.8%
Physical Sciences	24.0%	Other Languages & Literature	20.0%
Social Sciences	15.5%	History	23.9%
Engineering	14.9%	Music	6.9%
Psychology	13.3%	Philosophy	7.6%
Math & Computer Sciences	5.8%	Other Humanities	14.7%

SOURCE: National Research Council, 1983

The 1983 survey results show that most Ph.D.s in the United States in science/engineering and the humanities were working in the selected fields or seeking work (i.e. in the labor force) and most have jobs--approximately 94 percent of the science/engineering Ph.D.s and 91 percent of the humanities Ph.D.s were in the labor force. Of those in the labor force, 99 percent of the scientist/engineers and 98 percent of the humanities graduates were employed. In contrast, comparable employment rates at the national level for the general labor force in 1983 were 90.1 percent for females and 89.2 percent for males (NRC, 1983).

According to the above data, most Ph.D.s have jobs. However, some were involuntarily underemployed (for example, working part-time but preferring to work full-time or working in an occupation outside one's field of degree). In 1983, approximately one percent of the labor force of science/engineering Ph.D.s and almost three percent of the labor force of humanities Ph.D.s reported that they were working part-time but were seeking full-time employment. In addition, about 6 percent of the labor force of scientists/engineers and almost 18 percent in the humanities were working in nonscience/nonengineering or nonhumanities jobs (NRC, 1983).

In the humanities almost five percent of the labor force of Ph.D.s in modern language/literature were employed part-time but seeking full-time positions. Among the science/engineering fields, almost two percent of the labor force of doctorates in psychology were seeking full-time employment.

Variations were found also in the amount of "out-of-field" employment. Among science/engineering fields, roughly 15 percent of the labor force of doctorates with degrees in social science were employed outside their broad field; several humanities fields experienced percentages in excess of 20 percent: philosophy (23.5), history (22.9) and speech/theater (22.7).

A historical analysis completed by the National Research Council indicates that job opportunities for science/engineering and humanities doctorates have been changing over time. In 1983, roughly 52 percent of the employed Ph.D.s in science/engineering had jobs in educational institutions; in contrast, in 1973, 58 percent were employed at educational institutions. In 1983, 32 percent of the scientists/engineers were employed by business/industry as compared to 26 percent in 1973. Approximately 83 percent of the humanities Ph.D.s were employed by educational institutions in 1983, whereas 88 percent were employed by educational institutions in 1977 which was the first year the humanities discipline was surveyed. The National Research Council estimates that 8.8 percent of humanities Ph.D.s were employed by business and industry in 1983 as compared to 3.2 percent in 1977.

Approximately 33 percent of the employed science/engineering Ph.D.s were engaged in research, development, and design work, while 30 percent were primarily engaged in teaching. Approximately 66 percent of the employed Ph.D.s in the humanities were employed in teaching areas, while 11 percent were engaged in management/administration.

Neither NRC survey includes data on labor market projections for future doctorate recipients. Also, similar information on the job placement of master's degree recipients is not available at the national level. A national file of information for master's degree recipients similar to that which exists nationally for doctorates is needed. Such a file could include information on the number of individuals who earned master's degrees in a specific field, the number which are still seeking employment, the number which are employed already, whether they are employed in the academic or non-academic sector, if they are in a position related to their degree preparation, and whether or not they intend to pursue advanced graduate education. A reliable data base of this type at the national level would provide timely information on changes in the market place that would directly effect graduate education. Information on occupational supply and market demand analysis in Florida is contained in Chapter VI of this report.

III. GRADUATE EDUCATION PROGRAMS IN FLORIDA

Graduate education programs in Florida are described in this chapter for the nine state universities of the public sector and the seven largest graduate universities in the independent sector: the University of Miami, Nova University, Barry University, Florida Institute of Technology, Stetson University, St. Thomas University, and Jacksonville University.

In 1984-85, Florida had a total of 713 master's degree programs -- 482 (68%) in the public sector and 231 (32%) in the seven independent institutions selected for participation in this study. It should be noted that master's degree programs are also available to a limited extent at other independent institutions, such as Rollins College and the University of Tampa; however, given the legislative charge to examine graduate programs at selected private instituions, they are not included in the present study.

At the advanced graduate level, 257 doctoral programs were identified in 1984-85 -- 194 (75%) in the public sector and 63 (25%) in the private sector. Although master's degree programs are offered at all seven institutions, only four (Miami, Nova, FIT and Barry) have doctoral degree programs, with the University of Miami providing 67 percent of the total number of programs (Tables 9 and 10). The latest SUS academic programs inventory (December 1985) and a graduate programs inventory for selected institutions in the independent sector are contained in Tables 13 and 14 respectively at the end of this chapter.

A comparison of the growth in the number of graduate degree programs in the State University System is illustrated in Table 11. Between 1972-73 and 1978-79 the number of master's degree programs increased 53 percent in the public sector. In contrast, between 1978-79 and 1984-85 the increase in total number of master's degree programs slowed to a 12 percent increase. At the doctoral level, between 1972-73 and 1984-85, there was a 56 percent increase in the number of doctoral degree programs. However, during this 12 year span, it should be noted that growth occurred only in certain periods. For example, between 1970-71 and 1974-75, the State University System added no new doctoral programs due to a Board moratorium policy on new doctoral programs. Projected graduate programs after 1984-85 for the State University System are listed in Table 12. The number of master's and doctoral programs in public and independent universities for 1972-73, 1978-79, and 1984-85 are further illustrated in Figures 8, 9 and 10.

TABLE 9

STATE UNIVERSITY SYSTEM
GRADUATE DEGREE PROGRAMS
DECEMBER 1985

UNIVERSITY	MASTER'S	DOCTORATE	SPECIALIST	PROFESSIONAL
UNIVERSITY OF FLORIDA	105	62	11	5
FLORIDA STATE UNIV.	97	69	30	1
FLORIDA A & M UNIV.	19	1	0	1
UNIV. OF SOUTH FLORIDA	76	18	2	1
FLORIDA ATLANTIC UNIV.	35	17	4	0
UNIV. OF WEST FLORIDA	29	4	0	0
UNIV. OF CENTRAL FLORIDA	46	12	5	0
FLORIDA INTERNATIONAL UNIV.	52	8	2	0
UNIV. OF NORTH FLORIDA	23	3	3	0
TOTAL STATE UNIV. SYSTEM	482	194	55	8

NOTE: THE TOTAL FOR EACH UNIVERSITY INCLUDES AFFILIATED AND COOPERATIVE DEGREE PROGRAMS.

MASTER'S
UF - AFFIL/FIU
USF - COOP/FAMU COOP/FSU
FIU - AFFIL/UF AFFIL/UM AFFIL/FAU 2 COOP/FAU
UNF - COOP/UF

SPECIALIST
UCF - 3 COOP/UF 2 AFFIL/FAU
FIU - 2 AFFIL/FAU
UNF - 3 COOP/UF

DOCTORAL
FSU - 2 COOP/UF
USF - COOP/FSU
FAU - 7 COOP/UF 4 AFFIL/FIU 2 AFFIL/UCF
UWF - 4 COOP/FSU
UCF - 3 COOP/UF 2 AFFIL/FAU
FIU - AFFIL/UCF 7 AFFIL/FAU
UNF - 3 COOP/UF

SOURCE: State University System, December 1985

TABLE 10

GRADUATE DEGREE PROGRAMS
IN SELECTED INDEPENDENT INSTITUTIONS
1984-85

UNIVERSITY	MASTER'S	DOCTORATE	SPECIALIST	PROFESSIONAL
University of Miami	95	42		
Barry	17	1	1	1
Nova	43	11		2
Florida Institute of Technology	40	9	1	
Stetson	23	0	1	1
St. Thomas	11	0		1
Jacksonville	2	0		
TOTAL	231	63	3	5

SOURCE: State Board of Independent Colleges and Schools & Institutional Data, September 1985

TABLE 11

STATE UNIVERSITY SYSTEM GRADUATE DEGREE PROGRAMS
1972-73, 1978-79, 1984-85

TOTAL NUMBER OF MASTER'S PROGRAMS

UNIVERSITY	1972-73	1978-79	1984-85
UNIVERSITY OF FLORIDA	103	100	105
FLORIDA STATE UNIVERSITY	89	94	97
FLORIDA A & M UNIVERSITY	2	18	19
UNIVERSITY OF SOUTH FLORIDA	41	63	76
FLORIDA ATLANTIC UNIVERSITY	19	29	35
UNIVERSITY OF WEST FLORIDA	11	27	29
UNIVERSITY OF CENTRAL FLORIDA	8	41	46
FLORIDA INTERNATIONAL UNIVERSITY	5	39	52
UNIVERSITY OF NORTH FLORIDA	4	20	23
TOTAL STATE UNIVERSITY SYSTEM	282	431	482

TOTAL NUMBER OF DOCTORAL PROGRAMS

UNIVERSITY	1972-73	1978-79	1984-85
UNIVERSITY OF FLORIDA	61	54	62
FLORIDA STATE UNIVERSITY	55	67	69
FLORIDA A & M UNIVERSITY	0	0	1
UNIVERSITY OF SOUTH FLORIDA	6	10	18
FLORIDA ATLANTIC UNIVERSITY	2	9	17
UNIVERSITY OF WEST FLORIDA	0	2	4
UNIVERSITY OF CENTRAL FLORIDA	0	6	12
FLORIDA INTERNATIONAL UNIVERSITY	0	2	8
UNIVERSITY OF NORTH FLORIDA	0	3	3
TOTAL STATE UNIVERSITY SYSTEM	124	153	194

NOTE: THE TOTAL FOR EACH UNIVERSITY INCLUDES AFFILIATED AND COOPERATIVE DEGREE PROGRAMS

SOURCE: Board of Regents Fact Books: 1973, 1978, & 1985

TABLE 12

PENDING GRADUATE PROGRAMS IN THE STATE UNIVERSITY SYSTEM

DEGREE	TITLE OF PROGRAM	INSTITUTION	APROVED DATE/ ACTION TAKEN
Ph.D	Coastal & Oceanographic Engineering	UF	7/26/85 Planning
Ph.D	Business Administration	USF and UCF	7/26/85 Planning
Ph.D.	Architecture	UF	7/26/85 Feasibility
Ph.D.	Fine Arts	UF	7/26/85 Feasibility
Ph.D.	Philosophy	FSU/USF Affiliation	7/26/85 Feasibility
Ph.D.	Economics	FIU	1/11/85 Feasibility 5/24/85 Planning
Ph.D.	Biotechnology Engineering	FSU	7/26/85 Feasibility
Ph.D.	Dietetics and Nutrition	FIU	1/11/85 Feasibility
Ph.D.	Mathematics	FAU	1/11/85 Feasibility
Ph.D.	Chemistry	FAU	1/11/85 Feasibility
Ph.D.	Physics	FAU	1/11/85 Feasibility
Ph.D.	Biological Sciences	FAU/FIU/UCF Affiliation	1/11/85 Feasibility
Ph.D.	Mechanical Engineering	FAU	1/11/85 Planning
Ph.D.	Mass Communications	UF	1/11/85 Planning
Master's	Vocational Education	UWF	7/83 implementation deferred 7/84
Master's	International Development Education	FIU	7/85 anticipated implementation 9/86

SOURCE: State University System, October 1985

FIGURE 8

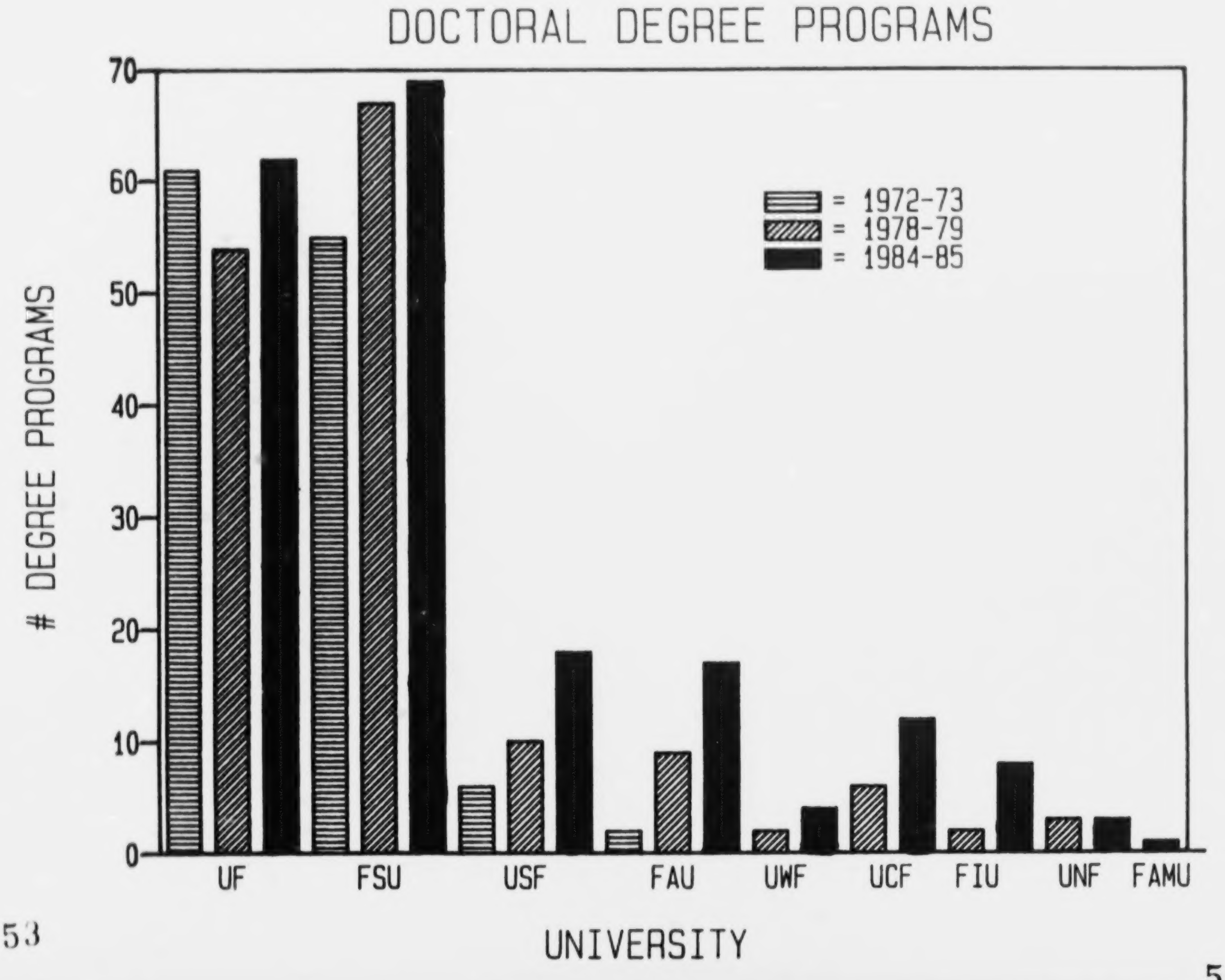
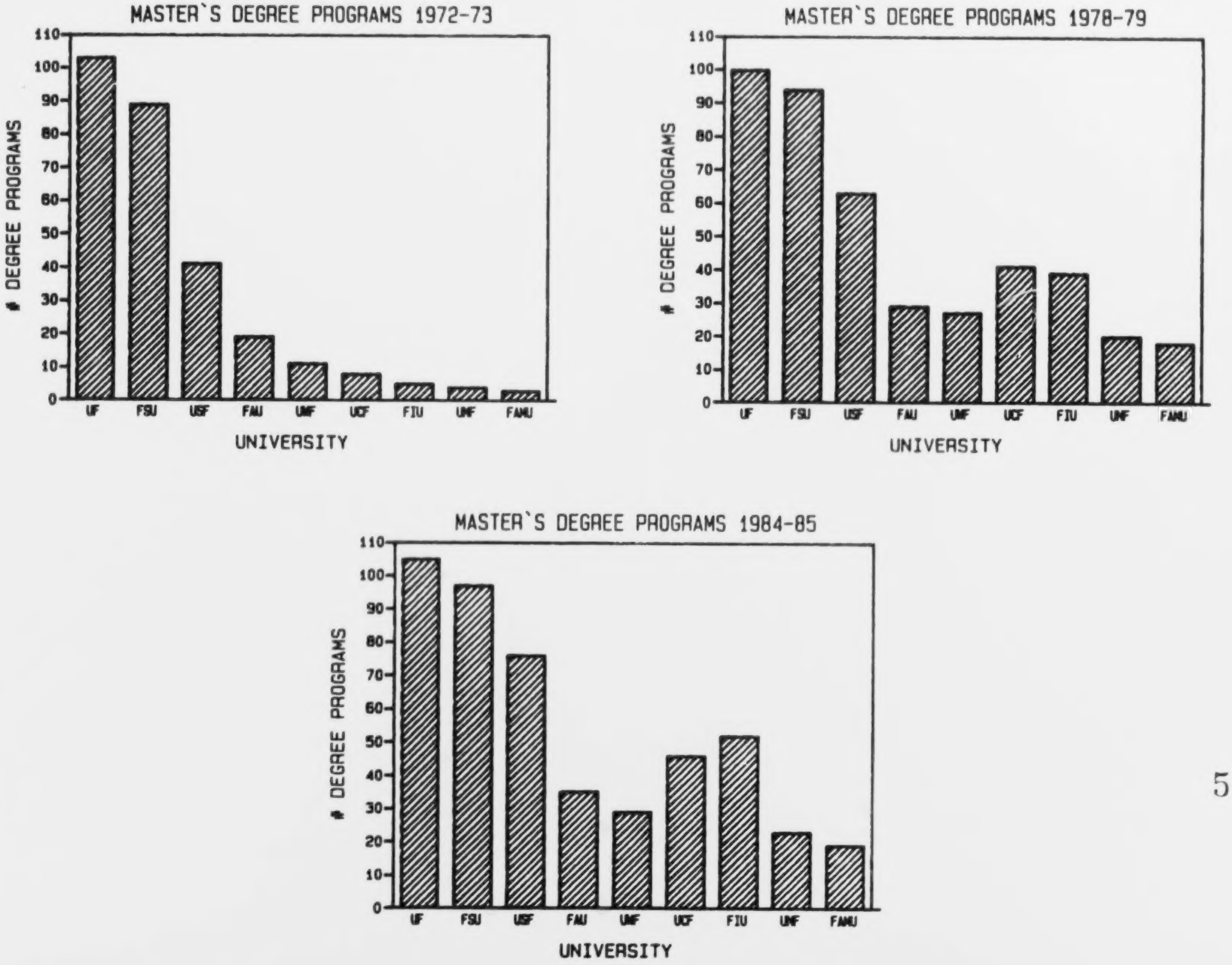

DOCTORAL DEGREE PROGRAMS
# DEGREE PROGRAMS
0
10
20
30
40
50
60
70
▤ = 1972-73
▨ = 1978-79
■ = 1984-85
UF
FSU
USF
FAU
UWF
UCF
FIU
UNF
FAMU
UNIVERSITY

FIGURE 9



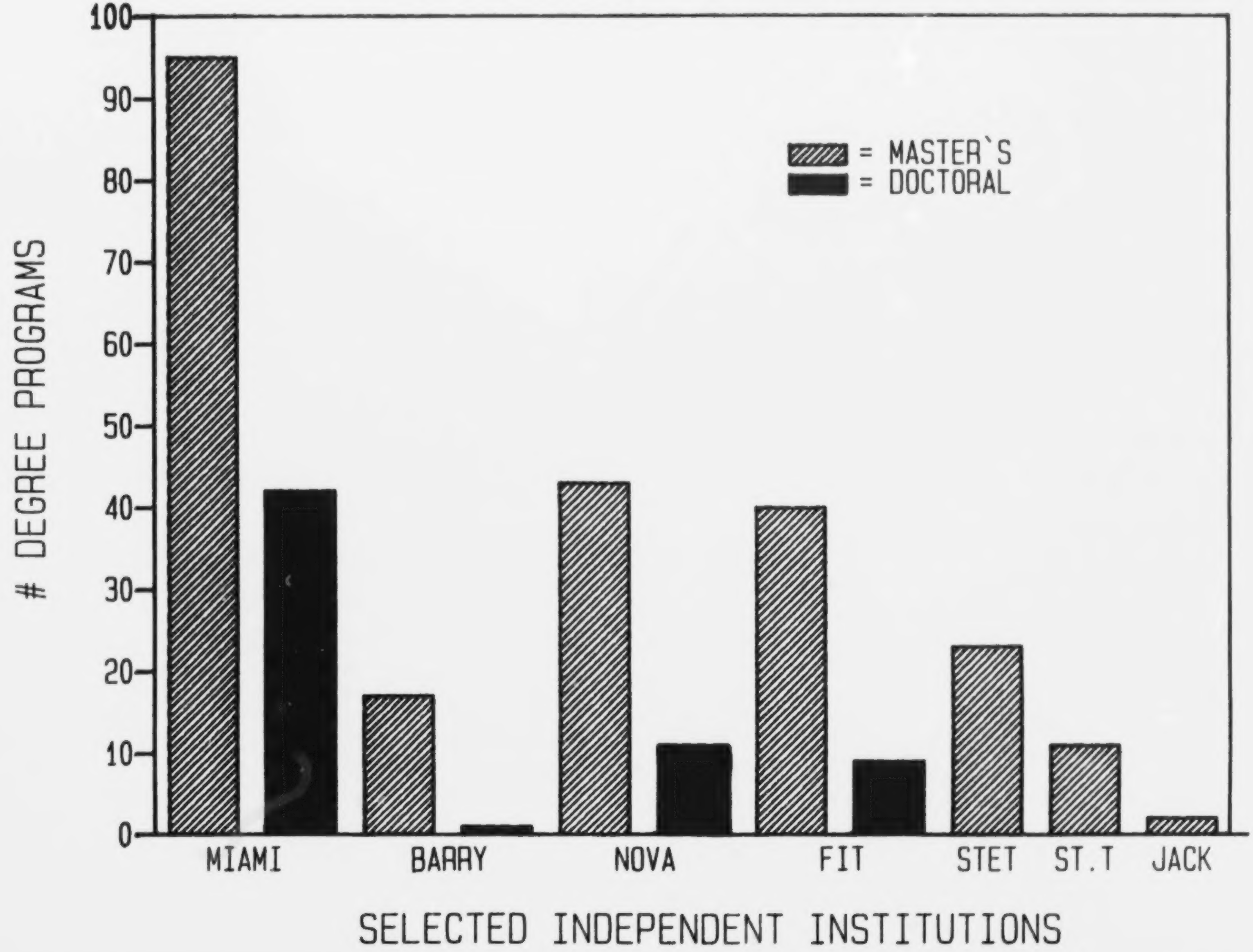
MASTER`S DEGREE PROGRAMS 1972-73

MASTER`S DEGREE PROGRAMS 1978-79

MASTER`S DEGREE PROGRAMS 1984-85

FIGURE 10

1984-85
GRADUATE DEGREE PROGRAMS



As stated in the Master Plan for Florida Postsecondary Education and illustrated by the number of programs identified in preceding tables, each university has been encouraged to offer a variety of master's level programs. This has been perceived as especially important for place-bound students who are attracted to programs in education, business, computer sciences and other high demand fields. The Master Plan also noted, however, that master's degree programs which require large investments in expensive equipment and facilities, a large number of specialized faculty, or where need and demand are not great, should not be offered in every university. These highly specialized programs are exemplified by the master's degree program in Environmental Technology and Urban Systems at Florida International University and the master's level program in Astronomy at the University of Florida.

At the doctoral level, the Master Plan emphasized that few universities both nationally and in Florida possess the combination of quality faculty, facilities, libraries, programs and resources to mount doctoral programs. Also, statewide demand for new doctoral programs in Florida is not expected to increase significantly in the near future. As Florida grows, however, new needs will emerge, as clearly evidenced today in Southeast Florida. As exemplified by the Southeast Florida Plan and Comprehensive University Presence Plan, further growth in advanced education programs in Florida at all universities should be carefully planned and responsive to demonstrated societal demand. The impact of doctoral programs on similar programs of acceptable quality in the public and independent sector must be considered and, where appropriate, a plan should be developed to coordinate the new program with similar programs in public or independent institutions in the region. As described earlier, a comprehensive and rigorous new program approval process is now in place in the State University System. The substantial strength at the doctoral level of the University of Miami and selected programs in other independent universities are also taken into consideration in the new program approval process.

As emphasized in the Master Plan and highlighted in Table 9, cooperative and affiliated doctoral programs offer great potential for meeting regional needs. Cooperative and affiliated doctoral programs such as those developed in Broward County and in Northeast and Northwest Florida have also contributed greatly to higher education program development. Affiliated degree programs represent equal partnership of the universities involved. Normally, the affiliated degree represents complimentary strengths in discipline area contributed by each participating university. The universities share faculty, students, facilities, libraries and other resources. Both universities are authorized to grant the degree. The universities participating in an affiliated degree program typically do not have authorization for a stand alone degree program.

Cooperative degree programs represent an agreement to share faculty, students, facilities in the delivery of a degree program to a previously underserved area. A cooperative degree program involves the degree-granting university, which has established authorization to offer the degree, and the host university. The host university contributes the cooperative degree program by faculty involvement in instruction and research, student enrollment in coursework, and use of facilities. The student enrolled at the host university earns the cooperative degree from the degree granting university. Clearly, alternatives to stand alone graduate programs in Florida have emerged through the creation of cooperative and affiliated programs involving two or more institutions. These programs make effective use of available state support and the existing strengths of the universities, and also provide a greater range of faculty and students with access to doctoral programs.

The Master Plan recognizes the importance of applied doctoral programs in fields where the relationship between the academic and non-academic community is crucial. For example, in fields such as education and social work, applied Ph.D. programs enable practicing professionals to research and apply their knowledge to the community as well as universities. These relationships are particularly suited to urban settings in which the place-bound needs of professionals and their profession often relate with needs of faculty and students for research and study. As the volume of information increases and the development of new knowledge quickens, professionals increasingly turn to graduate education to improve their skills and to participate in the expansion of knowledge in their profession. Educators, engineers, health workers, social workers, accountants, and managers present special needs for education at higher levels. In some fields, periodic recertification is mandatory. To meet these needs, state policy makers have advocated that certain advanced graduate programs should be offered on a regional basis, where they are close to the place-bound professionals to be served. These programs will be further addressed in the next chapter.

Plans for support for advanced graduate and professional programs in Southeast Florida are being forwarded through collaborative efforts between all postsecondary education sectors. Decisions are being made on a program by program basis and the independent sector is considered in the decision-making process. For this reason, four graduate schools in the independent sector selected for this study are in Southeast Florida. The data provided within the pages of this report on programs offered, FTE enrollments, and degrees awarded should facilitate future planning efforts in this area. The University of Miami and to some extent other independent universities offer options for advanced graduate education to Floridians and serve as an important state resource which should be maintained and utilized. The orientation of the Nova University programs differs from graduates programs at other institutions being examined and they are intended to meet different needs. For example, the doctoral-level program in clinical psychology at Nova which leads to a Psy.D. degree has been described by Nova administrators as a "practitioner/scientist" model of training which is different from the "scientist/practitioner" model leading to a Ph.D. in clinical psychology at Florida State University, the University of Florida and the University of South Florida. Nova contends that the Ph.D. degree in psychology emphasizes the research and scientific aspects of the profession while the Psy.D. focuses on the delivery of psychological services. Critics have argued that little agreement exists within the profession to support the assertion that Psy.D. training includes more clinical practice; rather, they stress that the optional curriculum for developing competence in the profession should provide solid experiences for students in research and scientific pursuits, in addition to clinical skills. In any event, this variation in emphasis and curriculum in graduate education programs at Nova University, and demand for students with such training, should be considered in the state planning process.

East Central Florida is a rapidly developing center for high technology and industry and business. A select number of advanced graduate programs at the University of Central Florida, Florida Institute of Technology, Stetson

University and other independent universities have been developed in science, engineering and business. The graduate program needs in Northeast Florida are met through master's program offerings at the University of North Florida and Jacksonville University and at the advanced graduate level by the University of Florida. Likewise, master degree programs are offered for the Panhandle Region by Florida State University and the University of West Florida. At the doctoral level, four cooperative degree programs exist between the University of West Florida and Florida State University. Examination of the long-term needs of each region and the extent to which the current programs meet these demands must be continued. As stated in the Master Plan, and discussed earlier, proposed programs at any university must consider societal and student demand in the region, clear evidence that existing programs cannot meet the demonstrated needs, and the possibility of cooperative or joint programs meeting the needs more cost-effectively.

The latest academic programs inventory of the State University System (December 1985) which lists all graduate programs offered in the public sector follows on pages 41-49 (Table 13). A graduate programs inventory for the seven independent universities which were selected for participation in this study appears on pages 50-55 (Table 14).

TABLE 13

ACADEMIC DEGREE PROGRAMS INVENTORY
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
01.	**Agribusiness and Agricultural Production**									
01.0102	Agricultural Business (0112)			B						
01.0103	Food and Resource Economics (0111)	B M D								
01.0605	Landscape Design (0204)			B						
02.	**Agricultural Sciences**									
02.0201	Animal Science (0104)	B M D		B						
02.0206	Dairy Science (0105)	B M								
02.0209	Poultry Science (0106)	B M								
02.0301	Food Science & Nutrition (0113)	B M D								
02.0401	Plant Sciences (0120)	B								
02.0402	Agronomy (0102)	B M D								
02.0403	Horticulture (Fruit & Vegetable Crops) (0108)	B								
02.0403	Horticulture Science (0108)	M D								
02.0404	Ornamental Horticulture (0109)	B		B						
02.0501	Soils Science (0103)	B M D								
03.	**Renewable Natural Resources**									
03.0501	Forest Resources & Conservation (0114)	B M D								
04.	**Architecture & Environmental Design**									
04.0201	Architecture (0202)	B M		B M	M[10]					
04.0301	Urban & Regional Planning (0206)	M	M D							
04.0501	Interior Design (0203)	B	B M						B	
04.0601	Landscape Architecture (0204)	BM[11]							M[11]	
05.	**Area and Ethnic Studies**									
05.0102	American Studies (USA) (0319)	B	B M		B M					
05.0103	Asian Studies (0301)	B	B M							
05.0105	Slavic & East European Studies (0311)		B M							
05.0106	European Studies (0310)									
05.0107	Latin American Studies (0308)	M								
05.0115	Inter-American Studies (North & South America) (0313)		B							
05.0201	Afro-American (Black) Studies (2211)			B	B					
05.0115	Hispanic Studies (1130)								M	

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
06.	Business & Management									
06.0101	Business, General (0501)		B M D		B M			B M	B M	M
06.0201	Accounting (0502)	B M	B M	B	B M	B M	B M	B M	B M	B M
06.0301	Banking & Finance (0504)	B M	B M	B	B	B	B	B	B M	B M
06.0401	Business Management & Administration (0506)	B M D	B M	B M	B M	B M	B M	B M	B M	B
06.0501	Business Economics (0517)			B	B M		B	B M		B
06.0701	Hotel and Restaurant Management (0508)		B					B	B M	
06.0705	Transportation Management (0510)								B	B
06.0801	Insurance & Risk Management (0512)	B M	B M						B	B
06.0901	International Business Management (0513)		B			B			B M	
06.1302	Management Science & Systems (0507)					B				
06.1401	Marketing Management (0509)	B M	B M	B	B	B	B	B	B	B
06.1601	Personnel Management (0515)					B			B	M
06.1701	Real Estate, General (0511)	B M	B			B			B M	B
08.	Marketing and Distribution									
08.1104	Tourism & Travel Management (0520)								B	
09.	Communications									
09.0101	Communications, General (0601)	M D	B M D		B M	B M	B M	B M	B	B
09.0201	Advertising (0604)	B	B							
09.0401	Journalism (0602)	B		B				B		
09.0402	Magazine Production (0602)			B						
09.0501	Public Relations (0606)	B								
09.0701	Radio and Television (0603)	B						B		
10.	Communications Technologies									
10.0104	Radio & TV Production & Broadcasting Technology (0605)							B		
11.	Computer & Information Sciences									
11.0101	Computer & Information Science, General (0701)	B M E D	B M D			B M	B	B M D	B M D[5]	B
11.0301	Data Processing (0703)			B						
11.0401	Information Sciences & Systems (0702)								B	
11.0501	Systems Analysis (0705)						M			

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
13.	Education									
13.0301	Curriculum & Instruction (0829)	MSD	B MSD		MSD	MSD		S^1D^1	S^6D^6	S^1D^1
13.0401	Educational Administration, General (0827)	MSD	MSD	M	MSD	MSD	M D^2	MS^6D^6	MS^6D^6	MS^1D^1
13.0404	Educational Supervision (0828)			M						
13.0406	Higher Education Administration (0805)	SD	MSD				D^2			
13.0501	Educational Media (0845)		M					B M		
13.0601	Instructional Systems (0844)		MSD							
13.0603	Educational Statistics & Research (0824)	MSD	MSD							
13.0604	Educational Testing, Evaluation & Measurement (0825)		MSD							
13.0801	School Psychology (2015)	MSD		M	M			M	M	
13.0802	Educational Psychology (0822)	MSD	MSD							B
13.0803	Agency, Correctional & Developmental Counseling (0862)	MSD								
13.0901	Social Foundations of Education (0821)	MSD	MSD							
13.1001	Special Education, General (0808)	MSD	B MSD		B M	B M D^7	B M	B MS^1D^1	M D^7	B M
13.1004	Education of the Gifted & Talented (0811)				M					
13.1005	Education of the Emotionally Handicapped (0816)	M			B M				B M	
13.1006	Education of the Mentally Handicapped (0810)	B M	B MSD		B M		B		B M	
13.1007	Education of the Multiple Handicapped (0820)		B MSD							
13.1009	Visual Disabilities (0814)		B MS							
13.1011	Special Learning Disabilities (0818)	M			B M				B M	
13.1011	Emotional Disturbances/Learning Disabilities (0818)		B MSD							
13.1012	Speech Corrections (0815)	B M								
13.1013	Clinical Teaching & Special Education (0861)						M			
13.1101	Student Counseling & Personnel Services (0826)	MSD	MSD	M	M	MS		MS^1D^1	M	MS^1D^1
13.1102	Student Personnel in Higher Education (0863)	MSD								
13.1103	Counselor Education (0864)	D								
13.1201	Adult & Continuing Education (0807)		MSD	M	M	M D^7	D^2		M D^7	
13.1202	Elementary Education (0802)	B M	B MSD	B M	B M	B M	B M	B M	B M	B M
13.1203	Junior High Education (0804)					B	B			
13.1204	Pre-Elementary Education (0823)	B M	B MSD			B M	B M		M	
13.1205	Secondary Education (0803)	M	MSD	M						B M
13.1206	Junior College Teaching (0806)				M	S D		S^6D^6	D^6	
13.1207	Urban Education								M	
13.1301	Agriculture Education (0840)	B M		M						
13.1302	Art Education (0831)	B M	B MSD	B	B M	B	B	B M	B M	B M
13.1303	Business Education (0838)			B M	B M		B	B M		B
13.1305	English Education (0848)	B M	B MSD	B M	B M	B	B M	B M	B M	
13.1306	Foreign Languages Education (0841)	B M	B MSD		B M	B	B	B M	B M	
13.1307	Health Education (0837)	B M	B M		B		B M		B M	
13.1308	Home Economics Education (0840)		B M						B M	
13.1311	Mathematics Education (0833)	B M	B MSD	B M	B M	B	B M	B M	B M	B M

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
13.1312	Music Education (0832)	B M	B M D	B	B M	B	B	B M	B M	B M
13.1314	Physical Education (0835)	B M	B MSD	B M	B M	B M	B M	B M	B M	B M
13.1315	Reading Education (0830)	M	B MSD		M	M	M	M	M	
13.1316	Science Education (0834)	B M	B MSD	B M	B M	B	B M	B M	B M	B M
13.1318	Social Studies Education (0855)	B M	B MSD	B M	B M	B	B M	B M	B M	
13.1320	Trade & Industrial Education (0839)	M	SD	B M	B M		B M D^2	B M	B M	B M
13.1321	Speech, Communications & English Education (0847)				B M		B M	B M		
13.1322	Classics Education (0849)				B					
13.1323	Humanities Education (0851)				B M					
13.1324	Movement Science Education (0856)		B MSD							
13.1325	Mass Communications - English Education (0858)				B					
13.1326	Science & Human Affairs Education (0860)		B MSD							
13.1327	Secondary Science and/or Math Teaching		B							
14.	Engineering									
14.0101	Engineering, General (0901)	B ME			B M D			M		
14.0201	Aerospace Engineering (0902)	B MED						B		
14.0301	Agricultural Engineering (0903)	B MED								
14.0701	Chemical Engineering (0906)	B MED	B	B	B M D					
14.0801	Civil Engineering (0908)	B MED	B	B	B M D			B M D	B M	
14.0802	Environmental Systems (0997)							M		
14.0901	Computer Engineering (0998)				B M D	M D^5		B M D		
14.1001	Electrical, Electronics & Communications Engineering (0909)	B MED	B	B	B M D	B M D^5		B M D	B M	
14.1101	Engineering Mechanics (0921)	MED								
14.1401	Environmental Health Engineering (0922)	B MED						B M D	M	
14.1701	Industrial Engineering (0913)				B M D			B M D	B	
14.1901	Mechanical Engineering (0910)	B MED	B	B	B M D	B M		B M D	B	
14.2001	Metallurgical & Materials Engineering (0914)	B MED								
14.2301	Nuclear Engineering (0920)	B MED								
14.2401	Coastal & Ocean Engineering (0926)	ME				B M D				
14.2601	Land Surveying (0925)	B								
14.2701	Systems Engineering (0927)	B								
14.2701	Industrial & Systems Engineering (0927)	B MED							B	
14.9901	Engineering Management (0928)				M					
15.	Engineering & Engineering-Related Technologies									
15.0101	Architectural Design & Construction Technology (0235)			B					B	
15.0103	Building Construction (0208)	B M							B	

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
15.0104	Construction Engineering Technology (0986)			B					B	
15.0201	Civil Technology (0987)			B					B[8]	
15.0202	Design Technology (0991)							B		
15.0303	Electronic Engineering Technology (0980)			B				B	B[8]	
15.0504	Environmental Technology & Urban Systems (0992)							B	B M	
15.0603	Industrial Technology (0984)						B		B	
15.0805	Mechanical Engineering Technology								B	
15.9901	Engineering Technology (0925)				B			B	B	B
15.9902	Operations Technology (0985)							B		
16.	Foreign Languages									
16.0101	Foreign Languages, Multiple Emphasis (1101)				B			B		
16.0402	Russian (1106)	B	B		B					
16.0403	Slavic Languages (1115)		M							
16.0501	German (1103)	B M	B M		B	B M			B	
16.0601	Greek (1110)		B M							
16.0901	French (1102)	B M	B M D		B M	B M	B	B	B	
16.0902	Italian (1104)		B		B				B	
16.0903	Latin (1109)	M	B M							
16.0904	Portuguese (1117)								B	
16.0905	Spanish (1105)	B M	B M D		B M	B M	B	B	B	
16.0906	Romantic Languages (1130)	D								
17.	Allied Health									
17.0209	Radiograph Medical Technology (1225)							B		
17.0302	Clinical Chemistry (1933)				B					
17.0310	Medical Technology (1223)	B	B		B	B	B	B	B	
17.0407	Vocational Rehabilitation (0842)	M	B MSD		M					
17.0508	Physician's Assistant - Primary Care (1260)	B								
17.0806	Music Therapy (1828)		B M							
17.0807	Occupational Therapy (1208)	B M							B	
17.0813	Physical Therapy (1212)	B		B					B	
17.0818	Respiratory Therapy (1273)			B				B		
17.9901	Allied Health Services (1201)	B								
18.	Health Sciences									
18.0103	Speech Pathology/Audiology (1220)		B MAD		M			B M		
18.0401	Dentistry (1204)	P								
18.0701	Health Care Administration (1202)	M		B		B			B M	

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
18.0703	Medical Records Administration (1215)			B				B	B	
18.0704	Health Science (1202)							M		B M
18.1001	Medicine (1206)	P			P					
18.1029	Medical Sciences (1285)	M D			M D					
18.1101	Nursing (1203)	B M D	B M	B	B M	B	B	B	B	B
18.1401	Pharmacy (1211)	B MPD		B MPD						
18.2201	Public Health (1214)				M				M^{9}	
18.2401	Veterinary Medicine (1218)	P								
18.2402	Veterinary Science (1286)	M								
19.	Home Economics									
19.0101	Home Economics, General (1301)		B D						B^{13}	
19.0503	Dietetics/Human Nutritional Services (1306)	B	B M						B M	
19.0701	Home and Family Life (1305)		B M							
19.0704	Marriage and Family Living (1310)		D							
19.0705	Gerontology (Aging) (1309)				B M					
19.0901	Textiles & Clothing (1303)		B M						B	
22.	Law									
22.0101	Law (1401)	P	P							
22.0103	Legal Assisting (1408 or 2197)						B	B		
22.0104	Taxation Law (1409)	M								
23.	Letters									
23.0101	English, General (1501)	B M D	B M D	B	B M D	B M	B M	B M	B	M
23.0201	Classics (1504)	B	B M		B					
23.0301	Comparative Literature (1503)		B							
23.0601	Linguistics (Phonetics, Semantics Philology) (1505)	M D			B M	B M				
23.0801	Literature (1502)									B
23.1001	Speech, Debate, & Forensics (1506)	B M D			B M			B		
24.	Liberal/General Studies									
24.0101	Liberal/General Studies (4901)	AA	AA	AA	AA B M	AA	AA	AA B	AA B	AA B
24.0102	Humanities (1513)		B M D		B	B		B		
24.0103	Interdisciplinary Humanities & Fine Arts (4912)							B		
24.0104	New College (4913)				B					

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
25.	Library & Archival Sciences									
25.0401	Library Science, General (1601)		B MAD		M					
26.	Life Sciences									
26.0101	Biology, General (0401)		B M D	B	B D	B M	B M	B M	B M	B
26.0201	Biochemistry (0414)	M D	B							
26.0301	Botany, General (0402)	B M D			B M			B		
26.0305	Plant Pathology (0404)	B M D								
26.0501	Microbiology (0411)	B M D			B M			B M		
26.0603	Ecology (Limnology) (0420)							B		
26.0607	Marine Biology (0418)						B			
26.0701	Zoology (0407)	B M D			B M			B		
26.0702	Entomology & Nematology (0421)	B M D								
26.0702	Entomology, Aquatic Entomology, & Structural Pest Control (0428)			B						
27.	Mathematics									
27.0101	Mathematics, General (1701)	B M D	B M D	B	B M D	B M	B M	B	B	B
27.0301	Applied Mathematics/Mathematical Sciences (1703)							M	B M	M
27.0501	Statistics (1702)	B M D	B M D					B M	B	B
30.	Multi/Interdisciplinary Studies									
30.0101	Biological & Physical Sciences (4902)					B	B			B
30.0102	Marine Science (4908)				M D					
30.0103	Interdisciplinary Natural Sciences (4911)				B					
30.0401	Humanities & Social Sciences (4903)				B		B M		B	
30.0801	Environmental Resource Management & Planning (2110)						B			
30.9901	Independent/Interdisciplinary Studies (4910)	B			B					
31.	Parks & Recreation									
31.0301	Parks & Recreation Management (2103)	B M	B M						B M	
38.	Philosophy, Religion & Theology									
38.0101	Philosophy (1509)	B M D	B M D		B M	B	B	B	B	
38.0201	Religious Studies (1510)	B	B M		B M		B		B	
38.0310	Philosophy & Religion			B						

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
40.	Physical Sciences									
40.0101	Radiation Physics (1901)		B							
40.0201	Astronomy (1911)	B M D								
40.0401	Atmospheric Sciences & Meteorology (1913)		B M D							
40.0501	Chemistry (1905)	B M D	B M D	B	B M D	B M D^1	B	B	B M^3	B
40.0506	Chemical Physics (1927)		M D							
40.0507	Industrial Chemistry (1942)							M		
40.0508	Chemical Sciences (1943)		B							
40.0601	Geology (1914)	B M D	B M D		B M	B			B	
40.0702	Oceanography (1919)		M D		M^2 D^2					
40.0704	Environmental Studies (1940)								B	
40.0801	Physics (1902)	B M D	B M D	B	B M	B M D^1	B M	B M	B M^3	
40.0805	Geophysical Fluid Dynamics (1930)		D							
40.0809	Molecular Biophysics (1931)		D							
42.	Psychology									
42.0101	Psychology, General (2001)	B M D	B M D	B	B M D	B M D^7	B M	B	B M D^7	B
42.0201	Clinical Psychology (2003)							M		
42.0601	Counseling Psychology (2004)	D					M			M
42.0901	Industrial & Organizational Psychology (2008)						M	M		
42.1601	Social Psychology (2005)					B				
43.	Protective Services									
43.0103	Criminal Justice Administration								M	
43.0104	Criminal Justice Studies (2105)	B	B M D	B	B M	B	B	B	B	B M
43.0106	Forensic Science (1925)							B		
43.0202	Fire Science & Safety (2107)								B	
44.	Public Affairs									
44.0201	Community Services (2101)									M
44.0401	Public Administration (2102)		M D		M	B M D^7	M	B M	B M D^7	M
44.0701	Social Work, General (2104)		B M D	B	B M	B	B	B	B M	
45.	Social Sciences									
45.0101	Social Sciences, General (2201 or 4909)		B M	M	B	B	B	B		
45.0201	Anthropology (2202)	B M D	B M D^1		B M D	B M D^1	B	B		
45.0501	Demography (2215)		M							

ACADEMIC DEGREE PROGRAMS INVENTORY, Continued
Current Through December 1985

CIP Codes	Degree Program (and Old HEGIS Code)	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF
45.0601	Economics (2204)	B M D	B M D	B	B	B M	B	B	B M	B
45.0701	Geography (2206)	B M D	B M D^1		B M	B M D^1				
45.0801	History (2205)	B M D	B M D	B	B M	B M D^1	B M	B M	B M^6	B M^1
45.0901	International Relations (2210)	M D	B M	B	B		B		B M	
45.1001	Political Science & Government (2207)	B M D	B M D	B	B M	B M D^1	B M	B M	B	B
45.1101	Sociology (2208)	B M D	B M D	B	B M	B M D^1	B	B M	B	B
50.	Visual & Performing Arts									
50.0101	Visual & Performing Arts/Fine Arts (1001)			B			B	B		B
50.0301	Dance (1008)		B M		B					
50.0402	Graphic Design (1009)	B	B M	B						
50.0501	Dramatic Arts (1007)	B M	B M D	B	B	B M	B	B	B	
50.0701	Fine Arts (Painting, Drawing, Sculpture) (1002)	B M	B M		B M	B	B	B	B	B
50.0703	Art History & Appreciation (1003)	B M	B M D		M		B			
50.0801	Graphics Arts Technology (0981)			B						
50.0901	Music, General (1005)		B			B			B	
50.0902	Music History & Appreciation (1006)	B	B M							
50.0903	Music Performance (1004)	B M	B M D	B	B M		B	B		B
50.0904	Music Composition (1021)		B M D							
50.0905	Music Theory (1022)		B M D							
50.0906	Opera Production (1029)		M							

AA	Associate in Arts Degree
B	Bachelor Degree
M	Master Degree
A	Advanced Master Degree
S	Specialist Degree
E	Engineer Degree
P	Professional Degree
D	Doctoral Degree (Ph.D. or Ed.D.)

1 Cooperative Degree Program with existing UF program
2 Cooperative Degree Program with existing FSU programs
3 Cooperative Degree Program with existing FAU programs
4 Cooperative Degree Program with exisiting USF programs
5 Affiliated Degree Program with existing UCF Program
6 Affiliated Degree Program with existing FAU program
7 Affiliated Degree Program Shared Between FAU and FIU
8 Programs to be Terminated as of June 1986
9 Affiliated Degree Program with existing University of Miami program
10 Cooperative Degree Program with exising FAMU program
11 Affiliated Degree Program Shared Between UF and FIU
12 Affiliated Degree Program with existing UF program
13 Program to be Terminated as of August 1988

AP
BDM/jc December 30, 1985
Code: C/CL/DEGREE INVENTORY

TABLE 14

GRADUATE DEGREE PROGRAMS INVENTORY
SELECTED INDEPENDENT INSTITUTIONS

1984-85

Degree Program	Barry	Miami	Stetson	Jacksonville	St. Thomas	FIT	Nova
03 Renewable Natural Resources							
Resource Protection & Regulation							M
04 Architecture & Environmental Design							
Architecture		M					
Urban & Regional Planning		M					
06 Business & Management							D
Accounting	M	M	M		M	M	M
Aviation Management						M	
Business Management & Admin	M	M	M	M	M	M	M D
Child Care Administration							M
Contract Management						M D	
Executive Master's of Bus Admin	M	M				M	
International Business Management		M					M
Management Science & Systems		M				M	
Operations Research						M	
Personnel Management						M D	M
Professional Management						M	
09 Communications							
Communications, General		M					
Telecommunications	M						
11 Computer & Information Sciences							
Computer & Information Sci, Gen		M			M	M	M
Data Processing							
Information Sciences & Systems					M		

Degree Program	Barry	Miami*	Stetson	Jackson-ville	St. Thomas	FIT	Nova
13 Education			M S	M		S	M
Curriculum & Instruction		M D					M
Education Administration, General		M D	M			M	M D
Elem & Sec Education Admin							M
Education Supervision			M				M
Educational Media							M
Instruction Systems		M					
Education Testing Eval & Meas		M D					
School Psychology							M
Administration & Supervision			M				
Special Education		M			M		D
Educ of the Emotionally Handicapped							M
Educ of the Mentally Handicapped							M
Special Learning Disabilities		M D	M				M D
Emotional Dist/Learning Dis	M						
Counseling the Disabled		M					
Student Counseling & Personnel Ser		M	M				M
Student Personnel in Higher Educ		M D					
Counselor Education			M				
Adult & Continuing Education							M D
Elementary Education		M D	M				M
Pre-Elementary Education		M D					
Secondary Education		M					
Higher Education							D
Junior College Teaching							D
Art Education		M					
English Education			M				M
Health Education		M					M
Mathematics Education			M				M
Community Counseling	M	M	M				
Guidance & Counseling	M		M				
Computer Education	M S					M	
American Studies Education			M				
Learning Resources							M
Teacher Education							M
Vocational, Tech & Occupational Education							M

* Both a Ph.D. and Ed.D. are offered in several programs

Degree Programs	Barry	Miami*	Stetson	Jackson-ville	St. Thomas	FIT	Nova
Music Education		M D					
Physical Education		M					M
Reading Education	M	M D					M
Science Education						M D	M
Social Studies Education			M				M
Biology Education			M				
Master Teacher		M					
Bilingual/Multicultural Educ		M					M
English as a Second Language		M					M
Recreation/Leisure Sports		M					
Athletic Administration/Coaching		M			M		
Recreation Therapy		M					
Sports/Athletic Training		M					
Exercise Physiology		M					
Human Performance/Health Fitness		M					
Professional Studies		M					
Developmental Counseling					M		
Marriage & Family Therapy		M			M		
14 Engineering							
Chemical Engineering						M	
Civil Engineering		M D				M	
Environmental Systems						M	
Computer Engineering							M
Electrical, Electronic & Communications Engineering		M D				M D	M
Industrial Engineering		M D					
Mechanical Engineering		M D				M D	
Coastal & Ocean Engineering						M	
Engineering Management						D	M
Biomedical Engineering		M D					
15 Engineering & Engineering Related Technologies							
Operations Research						M D	
16 Foreign Languages							
Spanish		M D					

	Degree Program	Barry	Miami	Stetson	Jackson-ville	St. Thomas	FIT	Nova
18	**Health Sciences**							
	Podiatric Medicine	P						
	Health Management					M	M D	
	Medicine		D P					
	Nursing	M	M D					
	Pharmacy		M D					
	Public Health		M D					
22	**Law**							
	Law		P	P		P		P
	Comparative Law (MCL)		P					
	Master of Law (LLM)		P					
23	**Letters**							
	English, General	M	M D	M				
26	**Life Sciences**							
	Anatomy		D					
	Biology, General		M D	M			M D	
	Biochemistry		M D					
	Microbiology		M D					
	Cellular/Molecular Biology		M D					
27	**Mathematics**							
	Mathematics, General		M D	M				
	Applied Mathematics/ Mathematical Sciences						M	

	Degree Program	Barry	Miami	Stetson	Jacksonville	St. Thomas	FIT	Nova
30	**Multi/Interdisciplinary Studies**							
	Marine Science		M D					
	Marine Physics		M					
	Marine Geology & Geophysics		M D					
	Biomedical Sciences	M	M D					
	Biochemistry & Biophysics							D
	Physiology & Biophysics		M D					
	Radiology		M					
38	**Philosophy, Religion & Theology**							
	Philosophy		M D					
	Religious Studies	M						
	Philosophy & Religion			M				
	Pastoral Ministry for Hispanics	M						
	Jewish Studies	M						
	Pastoral Ministries					M		
40	**Physical Sciences**							
	Atmospheric Sciences & Metorology		M D					
	Chemistry		M D				M	
	Geology		M					
	Oceanography		M D				M D	
	Enviromental Science						M	
	Physics		M D				M D	
	Space Technology						M	
	Space Sciences						M	
42	**Psychology**							
	Applied Psychology							M
	Psychology, General		M D				M	M
	Clinical Psychology	M						D P
	Counseling Psychology		D					M
	Engineering Psychology						M	
	Psychometrics							M
43	**Protective Services**							
	Criminal Justice Administration							M D
	Law Enforcement & Corrections							M

	Degree Program	Barry	Miami	Stetson	Jackson-ville	St. Thomas	FIT	Nova
44	Public Affairs							
	Public Administration		M				M	M D
	Social Work, General	M D						M
45	Social Sciences							
	Economics		M D*					
	Geography		M					
	History		M D	M				
	International Relations		M D					
	Political Science & Government			M				
	Sociology		M					
	Soviet Studies		M					
	InterAmerican Studies		M D					
50	Visual & Performing Arts							
	Dance		M					
	Dramatic Arts		M					
	Fine Arts (Painting, Drawing, Sculture)		M					
	Art History & Appreciation		M					
	Music Performance		M D					
	Music Composition		M D					
	Music Theory		M D					
	Media Writing/Production (School of Music)		M					
	Music Industry		M					
	Musicology		M D					
	Music Therapy		M					
	Music Engineering		M					

* In some programs, the Univeristy of Miami offers both a Ph.D. and a D.A.

M Master s Degree
S Specialist Degree
D Doctoral Degree
P Professional Degree

Source: Selected Independent Institutions, October 1985

IV. FTE ENROLLMENTS AND DEGREES AWARDED

Two major charges to the Commission in the Legislature proviso language for this study are to provide information on FTE enrollment and on master's and doctorate degrees awarded by Florida public and selected independent colleges and universities. To comply with this request, this chapter contains several tables of statistical data and commentary on student enrollments and degrees awarded. The first section of the chapter includes an overview of the graduate degree trends in the State University System and certain independent colleges and universities. Following this discussion, data are provided on the master's and doctoral degrees awarded by, and the FTE student enrollments for, both the public and independent sectors (Tables 15-20). The variation in graduate degrees awarded and student enrollment trends in specific disciplines and a comparison of enrollment trends in degrees awarded for selected programs are addressed. Finally, a brief discussion of programs for place-bound students and student profiles for selected programs are contained in Appendix A.

The State University System

Florida's nine state universities offer a broad spectrum of master's and doctoral programs in each of the major disciplines. While the number of doctoral degrees awarded by the State University System has remained relatively constant during the past decade, the number of master's degrees awarded declined approximately 16 percent since 1977-78. The discipline of education experienced the majority of the loss - in 1977-78, 2,344 master's degrees were awarded in education; in 1983-84, only 1,443 master's degrees were awarded. This represents a 38 percent decline in six years; however, the number of master's degrees awarded in education increased again in 1984-85 to 1,660. The number of doctorates awarded in education remained relatively constant at about 220 per year. The number of graduate degrees awarded increased in business and management, health professions, and computer sciences at the master's level.

Thirty-two (32) percent of the doctorates are awarded in education and 18 percent in the biological and physical sciences. The number of doctoral degrees awarded by the University of Florida fluctuated around 300. At the Florida State University the number of doctorates awarded has decreased significantly; 364 doctorates were awarded in 1971-72; 303 in 1977-78; and 257 in 1984-85. The disciplines of education, fine and applied arts, and the physical sciences accounted for the greatest decrease at Florida State University. During this same period, the University of South Florida's graduate program expanded from the one doctorate it awarded in 1971-72 to 74 in 1984-85. The number of juris doctorates awarded annually by Florida State University and the University of Florida (Table 15) has remained relatively constant since 1977 -- 528 J.D.s were awarded in 1977-78 and 539 were awarded in 1984-85.

At the master's level, the University of Florida, the Florida State University, Florida A & M University and Florida Atlantic University each awarded fewer master's degrees in 1984-85 than in 1971-72, which can be primarily attributed to a decline in the field of education. The growth of the master's program including the field of education was clearly evident at the University of Central Florida, the University of West Florida, the University of North Florida and Florida International University (FIU & UNF opened in 1972).

Independent Colleges and Universities

Forty-two percent of the master's degrees awarded in Florida are awarded by the State's seven independent colleges and universities included in this study. If other private colleges in Florida which offer master's degrees are considered in addition to the seven selected for participation in this study, the percentage in the private sector would be approximately 50 percent. Thirty-six percent of the doctorates in Florida are being awarded by four of the independent universities selected for participation in this study (Miami, FIT, Nova and Stetson). Twenty percent of the total graduate FTE enrollment was reported by independent institutions; however, this percentage is very low as the FTE enrollment for several large graduate programs at Nova University was not reported.

The number of master's degrees granted by the independent sector has almost doubled from 1,810 master's degrees awarded by these seven institutions in 1979-80 to 3,295 in 1984-85; 860 doctoral degrees were awarded by these same institutions in 1979-80 and 1,101 were awarded in 1984-85. In contrast, during this same period, the State University System remained about the same in the number of doctorates awarded and decreased in the number of master's degrees awarded.

At the master's level, most degrees are granted in two discrete disciplines. In 1984-85, 41 percent of the master's degrees awarded by the seven independent institutions were in business and management; 32 percent were awarded in education. The next closest discipline was computer and information sciences which awarded six percent of the master's degrees in 1984-85. The 1,338 master's degrees awarded by independent institutions in business and management represent 66 percent of the total master's degrees awarded in this discipline in Florida in 1984-85. Similarly, the master's degrees in education awarded by the independent sector in 1984-85 represent 39 percent of the state total. These colleges and universities account for a disproportionately small percentage of graduate degrees in the liberal arts -- letters, mathematics and the sciences.

At the doctoral level, a notable statistic for Florida's independent institutions is the 106 Ph.Ds. awarded in psychology during 1984-85; this number represents 64 percent of the total Ph.Ds. in psychology awarded in the State. While the juris doctorate represents 45 percent of the total doctorates granted by the State University System in 1984-85; the juris doctorate represents 67 percent of the total doctorates granted in the independent sector. Fifty-eight (58) percent of the total juris doctorates awarded in Florida in 1984-85 were awarded by the independent sector. Specifically, 736 juris doctorates were awarded by Florida independent universities in 1984-85 out of a total of 1,101 doctorates granted. In all other fields, however, independent institutions accounted for considerably fewer doctorates than the State University System.

Graduate Degrees Awarded

Table 15 lists the doctoral degrees awarded by the public sector for 1971-72, 1977-78, and 1984-85. Table 17 lists the number of master's degrees awarded by public universities for these same years. Table 16 lists the doctoral degrees awarded by independent universities and Table 18 lists the master's degrees awarded by this sector. Graphic representations of the doctoral and master's degrees awarded by each sector are contained in Figures 11 and 12 respectively.

TABLE 15

DOCTORAL DEGREES GRANTED BY DISCIPLINE AND INSTITUTION
STATE UNIVERSITY SYSTEM
1971-72, 1977-78 & 1984-85

DISCIPLINE	STATE UNIVERSITY SYSTEM			UNIVERSITY OF FLORIDA			FLORIDA STATE UNIVERSITY		
	1971-72	1977-78	1984-85	1971-72	1977-78	1984-85	1971-72	1977-78	1984-85
Agriculture & Natural Sciences	25	26	32	25	26	32	0	0	0
Architecture & Environmental Design	0	4	0	0	0	0	0	4	0
Area Studies	0	0	0	0	0	0	0	0	0
Biological Sciences	41	53	52	29	39	36	12	10	13
Business & Management	13	24	14	7	16	7	6	8	7
Communications	4	6	4	0	0	0	4	6	4
Computer & Information Sciences	0	0	1	0	0	0	0	0	0
Education	220	241	213	66	89	62	150	127	104
Engineering	53	37	53	50	37	47	3	0	0
Fine & Applied Arts	20	20	11	0	0	0	20	20	11
Foreign Languages	16	5	2	6	1	2	10	4	0
Health Professions	1	2	28	1	0	18	0	2	3
Home Economics	14	11	10	0	0	0	14	11	10
Law	*	528	539	*	377	350	*	151	189
Letters	48	31	30	19	16	16	29	15	11
Library Science	7	5	6	0	0	0	7	5	6
Mathematics	17	18	19	9	5	10	8	9	5
Physical Sciences	96	53	66	35	20	29	60	28	34
Psychology	44	59	60	26	30	28	18	17	10
Public Affairs & Services	2	6	10	0	0	0	2	6	10
Social Sciences	48	50	33	27	19	14	21	31	19
Interdisciplinary	0	0	12	0	0	0	0	0	10
TOTAL	*669	1179	1195	300	675	651	364	454	446
TOTAL (Without J.D.)	669	651	656	300	298	301	364	303	257

* 1971-72 SUS Fact Book does not inlcude the Juris Doctorates awarded.

DISCIPLINE	UNIV OF SOUTH FLORIDA			UNIV CENTRAL FLORIDA			FLORIDA ATLANTIC UNIV		
	1971-72	1977-78	1984-85	1971-72	1977-78	1984-85	1971-72	1977-78	1984-85
Agriculture & Natural Sciences									
Architecture & Environmental Design									
Area Studies									
Biological Sciences	0	4	3	0	0	0	0	0	0
Business & Management									
Communications									
Computer & Information Sciences	0	0	0	0	0	1	0	0	0
Education	0	3	28	0	0	5	4	22	14
Engineering	0	0	2	0	0	4	0	0	0
Fine & Applied Arts									
Foreign Languages									
Health Professions	0	0	7	0	0	0	0	0	0
Home Economics									
Law									
Letters	0	0	3	0	0	0	0	0	0
Library Science									
Mathematics	0	4	4	0	0	0	0	0	0
Physical Sciences	1	5	3	0	0	0	0	0	0
Psychology	0	12	22	0	0	0	0	0	0
Public Affairs & Services									
Social Sciences									
Interdisciplinary	0	0	2	0	0	0	0	0	0
TOTAL	1	28	74	0	0	5	4	22	14

SOURCE: State University System Fact Books 1973 & 1978-79
State University System, December 1985

TABLE 16

DOCTORAL DEGREES GRANTED BY DISCIPLINE AND INSTITUTION AT SELECTED INDEPENDENT INSTITUTIONS 1981-82 & 1984-85

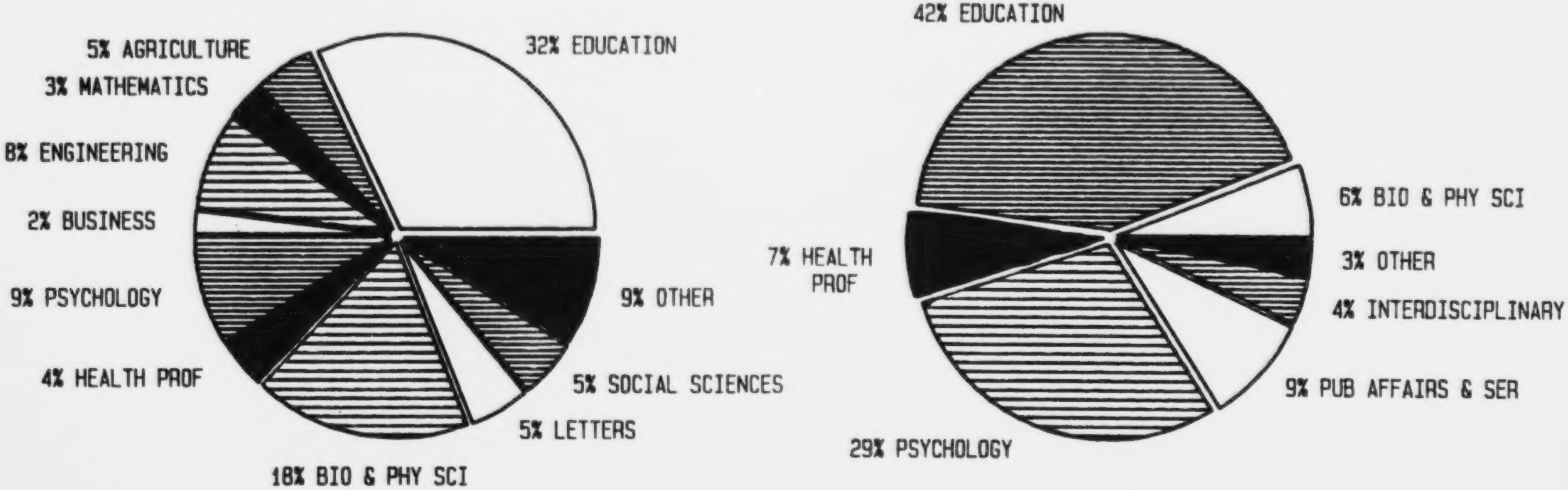
Discipline	TOTAL		MIAMI		FIT		NOVA	
	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85
Agriculture & Natural Sciences	0	0	0	0	0	0	0	0
Architecture & Environmental Design	0	0	0	0	0	0	0	0
Area Studies	0	0	0	0	0	0	0	0
Biological Sciences	15	13	14	12	1	1	0	0
Business & Management	9	1	0	0	0	1	9	0
Communications	0	0	0	0	0	0	0	0
Computer & Information Sciences	0	0	0	0	0	0	0	0
Education	213	150	18	17	1	1	194	132
Engineering & Related Technologies	3	0	2	0	1	0	0	0
Fine & Applied Arts	8	6	8	6	0	0	0	0
Foreign Languages	0	0	0	0	0	0	0	0
Health Professions	35	26	35	26	0	0	0	0
Home Economics	0	0	0	0	0	0	0	0
Law	669*	736*	342	357	0	0	188	198
Letters	5	2	5	2	0	0	0	0
Library Science	0	0	0	0	0	0	0	0
Mathematics	3	0	3	0	0	0	0	0
Physical Sciences	3	10	3	10	0	0	0	0
Psychology	75	106	14	25	46	58	15	23
Public Affairs & Services	49	34	0	0	0	0	49	34
Social Sciences	5	3	5	3	0	0	0	0
Interdisciplinary	7	14	7	14	0	0	0	0
TOTAL	1,099	1,101	456	472	49	61	455	387
TOTAL (Without J.D.)	430	365	114	115	49	61	267	189

* Also includes Stetson University's Juris Doctorate degrees--139 in 1981-82 and 181 in 1984-85. St. Thomas University offers the J.D.--No degrees have been awarded to date.

SOURCE: Selected Independent Institutions, October 1985

FIGURE 11

1984-85
DOCTORAL DEGREES AWARDED



PUBLIC INSTITUTIONS

INDEPENDENT INSTITUTIONS

TABLE 17

MASTER'S DEGREES GRANTED BY DISCIPLINE AND INSTITUTION
STATE UNIVERSITY SYSTEM
1971-72, 1977-78 & 1984-85

DISCIPLINE	STATE UNIVERSITY SYSTEM 1971-72	STATE UNIVERSITY SYSTEM 1977-78	STATE UNIVERSITY SYSTEM 1984-85	UNIVERSITY OF FLORIDA 1971-72	UNIVERSITY OF FLORIDA 1977-78	UNIVERSITY OF FLORIDA 1984-85	FLORIDA STATE UNIVERSITY 1971-72	FLORIDA STATE UNIVERSITY 1977-78	FLORIDA STATE UNIVERSITY 1984-85
Agriculture & Natural Sciences	83	101	104	83	101	104	0	0	0
Architecture & Environmental Design	21	126	95	21	86	50	0	40	38
Area Studies	15	18	13	5	10	7	10	7	5
Biological Sciences	92	99	69	50	38	27	18	20	13
Business & Management	504	621	702	123	58	85	187	69	70
Communications	33	54	65	21	18	29	12	18	24
Computer & Information Sciences	0	0	91	0	0	24	0	0	8
Education	2063	2344	1660	454	318	222	371	343	238
Engineering	329	270	335	265	188	231	12	0	0
Fine & Applied Arts	107	173	131	7	20	23	75	134	88
Foreign Languages	41	28	23	15	5	11	19	11	10
Health Professions	116	153	271	116	40	84	0	45	33
Home Economics	10	85	34	0	0	0	10	41	10
Law	0	74	57	0	74	57	0	0	0
Letters	132	158	119	55	59	34	36	34	25
Library Science	166	232	118	0	0	0	166	157	54
Mathematics	62	54	56	28	16	16	23	22	19
Physical Sciences	164	97	80	25	21	17	54	49	41
Psychology	82	153	120	26	15	22	32	19	23
Public Affairs & Services	149	359	265	0	0	0	142	250	119
Social Sciences	292	199	136	47	65	37	125	73	58
Interdisciplinary	0	9	18	0	0	0	0	0	1
Total	4461	5411	4562	1341	1132	1080	1292	1332	877

DISCIPLINE	FLORIDA A & M UNIVERSITY 1971-72	1977-78	1984-85	UNIVERSITY OF SOUTH FLORIDA 1971-72	1977-78	1984-85	FLORIDA ATLANTIC UNIV 1971-72	1977-78	1984-85
Agriculture & Natural Sciences	0	0	0	0	0	0	0	0	0
Architecture environmental Design	0	0	7	0	0	0	0	0	0
Area Studies	0	0	0	0	1	1	0	0	0
Biological Sciences	0	0	0	15	17	14	3	16	5
Business & Management	0	0	4	33	63	137	69	44	67
Communications	0	0	0	0	0	0	0	0	0
Computer & Information Sciences	0	0	0	0	0	0	0	0	8
Education	228	163	40	478	456	323	407	337	177
Engineering	0	0	0	34	37	24	3	12	31
Fine & Applied Arts	0	0	0	25	12	20	0	7	0
Foreign Languages	0	0	0	7	12	2	0	0	0
Health Professions	0	0	2	0	35	80	0	0	0
Home Economics	0	0	0	0	22	20	0	0	0
Law	0	0	0	0	0	0	0	0	0
Letters	0	0	0	24	24	33	9	16	12
Library Science	0	0	0	0	69	64	0	0	0
Mathematics	0	0	0	8	4	6	3	3	4
Physical Sciences	0	0	0	18	12	16	8	8	0
Psychology	0	6	0	12	32	7	1	2	6
Public Affairs & Sciences	0	0	0	0	19	42	7	20	13
Social Sciences	0	6	0	76	29	18	18	15	12
Interdisciplinary	0	0	0	0	7	11	0	0	0
Total	228	175	53	730	851	818	528	480	335

DISCIPLINE	UNIV WEST FLORIDA			UNIV CENT FLORIDA			FLORIDA INT UNIV			UNIV NORTH FLORIDA		
	71-72	77-78	84-85	71-72	77-78	84-85	71-72	77-78	84-85	71-72	77-78	84-85
Agriculture & Natural Sciences	0	0	0	0	0	0	0	0	0	0	0	0
Architecture Environmental Design	0	0	0	0	0	0	0	0	0	0	0	0
Area Studies	0	0	0	0	0	0	0	0	0	0	0	0
Biological Sciences	6	3	5	0	5	5	0	0	0	0	0	0
Business & Management	65	106	106	27	47	45	0	117	91	0	117	97
Communications	0	10	7	0	8	5	0	0	0	0	0	0
Computer & Information	0	1	35	0	3	12	0	0	4	0	0	0
Education	48	113	238	77	207	176	0	195	111	0	212	135
Engineering	0	0	1	15	32	45	0	1	3	0	0	0
Fine & Applied Arts	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Languages	0	0	0	0	0	0	0	0	0	0	0	0
Health Professions	0	0	0	0	0	17	0	25	16	0	8	39
Home Economics	0	0	0	0	0	0	0	22	4	0	0	0
Law	0	0	0	0	0	0	0	0	0	0	0	0
Letters	8	12	7	0	13	8	0	0	0	0	0	0
Library Science	0	0	0	0	6	0	0	0	0	0	0	0
Mathematics	0	8	1	0	1	3	0	0	1	0	0	6
Physical Sciences	59	4	0	0	3	6	0	0	0	0	0	0
Psychology	11	41	34	0	17	16	0	10	0	0	11	12
Public Affairs & Services	0	13	21	0	5	6	0	47	52	0	5	12
Social Sciences	26	11	4	0	0	4	0	0	3	0	0	0
Interdisciplinary Studies	0	2	6	0	0	0	0	0	0	0	0	0
Total	223	324	465	119	347	348	0	417	285	0	353	301

SOURCE: State University System Fact Books 1973 & 1978-79.
State University System, December 1985

TABLE 18

MASTER'S DEGREES GRANTED BY DISCIPLINE AND INSTITUTION AT SELECTED INDEPENDENT INSTITUTIONS 1981-82 & 1984-85

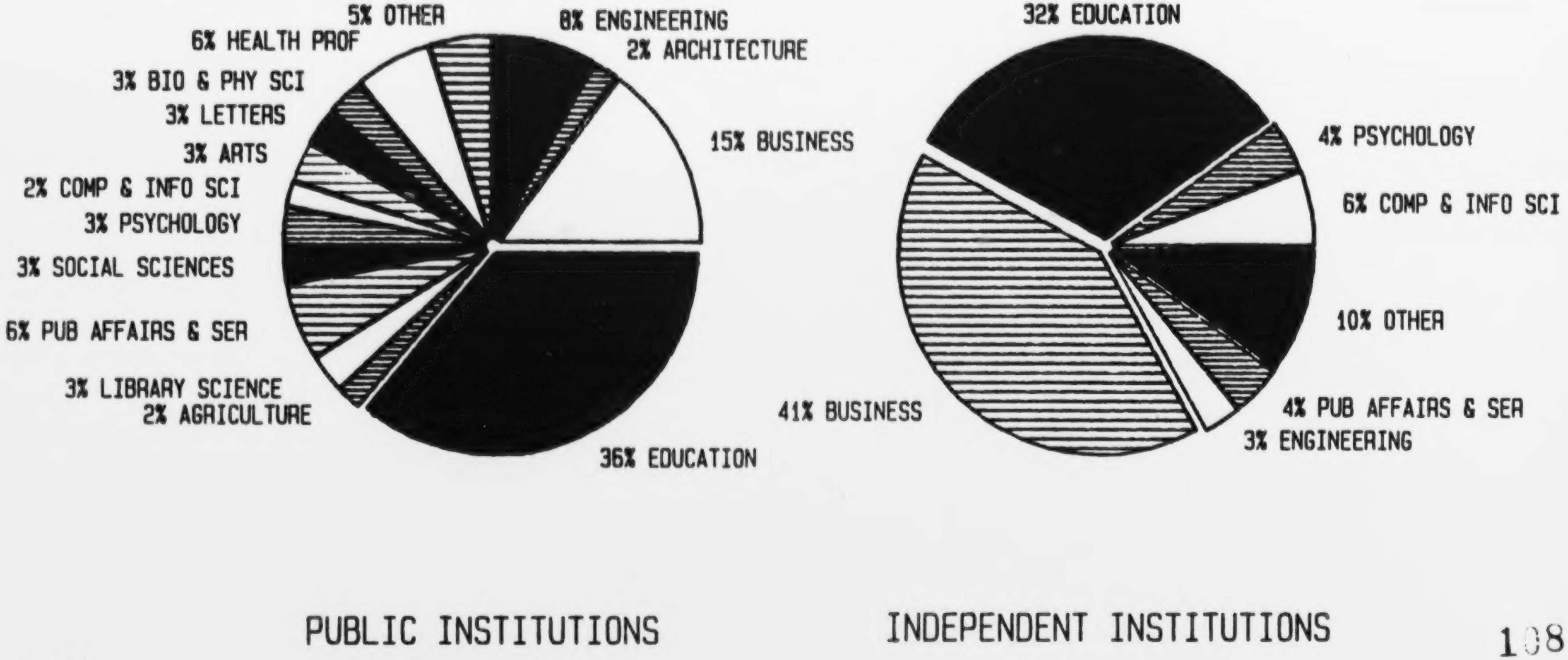
Discipline	TOTAL		MIAMI		BARRY		FIT	
	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85
Agriculture & Natural Sciences	0	2	0	0	0	0	0	0
Architecture & Environmental Design	0	1	0	1	0	0	0	0
Area Studies	0	0	0	0	0	0	0	0
Biological Sciences	9	10	5	5	0	0	4	5
Business & Management	1,143	1,338	300	328	34	65	513	584
Communications	0	14	0	11	0	3	0	0
Computer & Information Sciences	47	183	6	24	0	0	34	158
Education	1,416	1,062	101	71	33	82	7	9
Engineering & Related Technologies	51	106	29	38	0	0	22	58
Fine & Applied Arts	51	53	51	53	0	0	0	0
Foreign Languages	1	3	1	3	0	0	0	0
Health Professions	35	68	27	19	0	0	0	8
Home Economics	0	0	0	0	0	0	0	0
Law	111	83	111	83	0	0	0	0
Letters	15	16	5	4	6	7	0	0
Library Science	0	0	0	0	0	0	0	0
Mathematics	3	6	2	4	0	0	1	1
Physical Sciences	24	45	6	8	0	0	18	37
Psychology	73	135	6	9	0	5	0	0
Public Affairs & Services	281	128	0	0	116	94	0	1
Social Sciences	21	19	19	17	0	0	0	0
Interdisciplinary	14	18	14	18	0	5	0	0
Total	3,295	3,295	683	696	189	261	599	861

Discipline	NOVA		STETSON		JACKSONVILLE		ST. THOMAS	
	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85	1981-82	1984-85
Agriculture & Natural Sciences	0	2	0	0	0	0	0	0
Architecture & Environmental Design	0	0	0	0	0	0	0	0
Area Studies	0	0	0	0	0	0	0	0
Biological Sciences	0	0	0	0	0	0	0	0
Business & Management	198	263	30	30	26	15	42	53
Communications	0	0	0	0	0	0	0	0
Computer & Information Sciences	7	1	0	0	0	0	0	0
Education	1,098	805	69	16	39	25	69	62
Engineering & Related Technologies	0	10	0	0	0	0	0	0
Fine & Applied Arts	0	0	0	0	0	0	0	0
Foreign Languages	0	0	0	0	0	0	0	0
Health Professions	0	0	0	0	0	0	8	41
Home Economics	0	0	0	0	0	0	0	0
Law	0	0	0	0	0	0	0	0
Letters	0	0	3	5	0	0	1	0
Library Science	0	0	0	0	0	0	0	0
Mathematics	0	0	0	1	0	0	0	0
Physical Sciences	0	0	0	0	0	0	0	0
Psychology	67	121	0	0	0	0	0	0
Public Affairs & Services	165	33	0	0	0	0	0	0
Social Sciences	0	0	2	2	0	0	0	0
Interdisciplinary	0	0	0	0	0	0	0	0
Total	1,535	1,235	104	54	65	40	120	156

SOURCE: Selected Independent Institutions, October 1985

FIGURE 12

1984-85
MASTER'S DEGREES AWARDED



PUBLIC INSTITUTIONS

INDEPENDENT INSTITUTIONS

FTE Student Enrollments

Tables 19 and 20 on the next several pages contain the student enrollment data for the State University System (Table 19) and the seven selected independent universities (Table 20).

TABLE 19

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT PUBLIC UNIVERSITIES

DISCIPLINE	STATE UNIVERSITY SYSTEM				UNIVERSITY OF FLORIDA			
	1978-79		1984-85		1978-79		1984-85	
	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS
Agriculture & Natural Sciences	184.0	144.0	255.0	128.0	184.0	144.0	255.0	128.0
Architecture & Environmental Design	187.2	1.2	174.8	16.1	131.9	.4	93.3	13.6
Area Studies	13.8	3.4	15.7	7.7	2.5	2.5	5.9	5.3
Biological Sciences	283.8	84.5	252.4	84.7	69.2	48.4	34.9	22.2
Business & Management	1,371.5	23.3	1,626.3	23.8	227.6	13.5	210.7	13.4
Communications	106.1	11.8	112.3	9.8	24.5	8.0	36.5	6.4
Computer & Information Sciences	55.7	.2	216.6	9.4	0.0	0.0	52.2	6.0
Education	4,640.0	156.6	4,081.9	195.1	605.2	60.0	523.0	84.5
Engineering	453.4	85.4	788.4	127.5	320.4	74.5	490.9	97.0
Fine & Applied Arts	394.0	19.7	373.5	22.5	38.6	2.8	43.4	2.9
Foreign Languages	92.6	7.9	85.2	7.4	28.0	5.0	27.6	3.5
Health Professions	401.4	56.2	668.6	82.8	191.0	46.0	289.0	62.0
Home Economics	162.4	11.4	102.8	10.4	0.0	0.0	0.0	0.0
Law	1,596.5	0.0	1,648.4	0.0	1,095.5	0.0	1,089.3	0.0
Letters	408.9	44.6	332.7	43.4	135.3	23.6	115.4	23.3
Library Science	233.3	2.1	174.9	.8	0.0	0.0	0.0	0.0
Mathematics	316.1	17.3	308.4	22.2	124.8	7.6	128.8	9.5
Physical Sciences	310.2	110.1	330.2	119.0	89.0	61.9	113.1	66.7
Psychology	444.8	42.9	419.9	67.1	81.3	14.3	66.5	17.8
Public Affairs & Services	585.8	10.2	557.6	8.4	0.0	0.0	0.0	0.0
Social Sciences	577.9	55.1	560.6	55.3	152.8	26.7	174.0	23.0
Interdisciplinary	1.3	.3	19.9	4.0	1.3	0.0	3.9	0.0
TOTAL*	12,820.7	888.2	13,005.0	1,045.0	3,503.0	539.0	3,753.0	585.0

* Differences in totals due to rounding.

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT PUBLIC UNIVERSITIES

DISCIPLINE	FLORIDA STATE UNIVERSITY				FLORIDA A & M UNIVERSITY			
	1978-79		1984-85		1978-79		1984-85	
	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Architecture & Environmental Design	52.6	.8	65.2	2.5	2.4	0.0	16.2	0.0
Area Studies	8.2	.9	5.8	1.7	0.0	0.0	0.0	0.0
Biological Sciences	76.6	10.3	71.0	27.0	0.0	0.0	0.0	0.0
Business & Management	154.7	3.1	110.9	4.2	0.0	0.0	14.7	0.0
Communications	22.2	1.7	35.0	1.7	0.0	0.0	0.0	0.0
Computer & Information Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Education	797.0	74.0	542.6	65.0	285.6	.1	101.8	0.0
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fine & Applied Arts	264.7	15.0	249.9	18.6	0.0	0.0	0.0	0.0
Foreign Languages	34.7	2.4	30.2	1.7	0.0	0.0	0.0	0.0
Health Professions	60.8	1.8	45.7	2.5	7.3	1.8	22.7	6.6
Home Economics	66.5	11.4	51.5	10.1	2.0	0.1	0.0	0.0
Law	501.0	0.0	559.1	0.0	0.0	0.0	0.0	0.0
Letters	111.7	15.0	69.8	13.2	.7	0.0	0.0	0.0
Library Science	135.7	2.1	72.9	.8	2.1	0.0	0.0	0.0
Mathematics	94.0	6.2	78.8	5.1	.8	0.0	4.3	0.0
Physical Sciences	163.9	37.4	146.8	43.1	0.0	0.0	0.0	0.0
Psychology	79.7	7.2	95.3	5.9	16.3	1.2	10.7	1.4
Public Affairs & Services	385.7	5.6	325.5	5.9	4.9	.2	0.0	0.0
Social Sciences	178.8	16.3	146.8	16.9	14.7	0.1	4.6	0.0
Interdisciplinary	0.0	0.0	12.2	4.0	0.0	0.0	0.0	0.0
TOTAL	3,188.5	211.2	2,715.0	230.0	336.8	3.5	175.0	8.0

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT PUBLIC UNIVERSITIES

DISCIPLINE	UNIVERSITY OF SOUTH FLORIDA				FLORIDA ATLANTIC UNIVERSITY			
	1978-79		1984-85		1978-79		1984-85	
	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Architecture & Environmental Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Area Studies	3.1	0.0	4.0	.7	0.0	0.0	0.0	0.0
Biological Sciences	77.7	17.8	90.8	27.4	18.0	3.6	11.9	2.3
Business & Management	170.3	4.5	376.6	6.2	113.4	0.0	129.4	0.0
Communications	0.0	0.0	3.0	.6	0.0	0.0	0.0	0.0
Computer & Information Sciences	0.0	0.0	0.0	0.0	15.2	0.0	22.9	2.1
Education	869.4	4.2	1013.9	38.6	613.2	12.7	431.7	0.0
Engineering	51.6	7.3	88.2	9.4	5.8	1.2	80.1	9.2
Fine & Applied Arts	58.4	1.2	53.1	1.0	13.1	.7	13.7	0.0
Foreign Languages	23.3	.5	13.9	1.1	4.4	0.0	7.4	1.1
Health Professions	74.9	6.6	187.3	11.7	0.0	0.0	0.0	0.0
Home Economics	44.0	0.0	27.9	0.3	0.0	0.0	0.0	0.0
Law	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Letters	85.9	3.0	68.8	4.8	13.9	3.1	20.3	2.1
Library Science	93.4	0.0	102.0	0.0	2.1	0.0	0.0	0.0
Mathematics	33.3	3.1	23.4	3.5	4.9	.4	9.6	4.1
Physical Sciences	42.2	7.5	55.0	7.6	4.8	3.2	5.0	1.5
Psychology	77.1	12.6	68.2	22.2	8.0	1.8	13.1	4.3
Public Affairs & Services	24.4	4.1	36.5	1.5	24.0	0.0	32.3	0.0
Social Sciences	82.3	4.6	114.7	7.4	47.1	5.8	25.6	6.4
Interdisciplinary	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0
TOTAL	1,811.3	77.0	2,330.0	144.0	888.0	32.5	803.0	33.0

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT PUBLIC UNIVERSITIES

DISCIPLINE	UNIVERSITY OF WEST FLORIDA				UNIVERSITY OF CENTRAL FLORIDA			
	1978-79		1984-85		1978-79		1984-85	
	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS	GRAD CLASS	THES/ DISS
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Architecture & Environmental Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Area Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Biological Sciences	18.5	1.5	18.9	2.4	15.7	2.9	13.4	2.4
Business & Management	161.7	0.0	151.8	0.0	77.2	0.4	155.7	0.0
Communications	22.7	.3	11.7	.4	15.5	1.8	14.2	.6
Computer & Information Sciences	6.8	0.0	69.0	.2	17.4	.2	42.1	1.1
Education	242.1	1.1	303.2	.9	409.4	4.0	464.8	6.1
Engineering	0.0	0.0	0.0	0.0	45.9	2.4	120.0	10.9
Fine & Applied Arts	0.0	0.0	0.6	0.0	1.3	0.0	1.4	0.0
Foreign Languages	0.0	0.0	0.0	0.0	.3	0.0	0.0	0.0
Health Professions	0.0	0.0	0.0	0.0	0.0	0.0	30.1	0.0
Home Economics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Law	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Letters	29.6	.1	17.0	0.0	18.7	0.0	20.9	0.0
Library Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	36.8	0.0	33.8	0.0	8.7	0.0	13.4	0.0
Physical Sciences	1.5	0.0	0.0	0.0	4.7	.1	9.3	0.0
Psychology	75.7	3.5	74.5	6.1	36.3	2.3	37.6	8.4
Public Affairs & Services	31.1	0.0	27.9	0.0	6.4	.3	12.4	0.0
Social Sciences	69.7	1.4	18.8	.1	8.1	0.2	12.8	1.5
Interdisciplinary	0.0	.3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	696.2	8.2	727.0	10.0	665.6	14.6	948.0	31.0

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT PUBLIC UNIVERSITIES

DISCIPLINE	FLORIDA INTERNATIONAL UNIVERSITY 1978-79 GRAD CLASS	FLORIDA INTERNATIONAL UNIVERSITY 1978-79 THES/DISS	FLORIDA INTERNATIONAL UNIVERSITY 1984-85 GRAD CLASS	FLORIDA INTERNATIONAL UNIVERSITY 1984-85 THES/DISS	UNIVERSITY OF NORTH FLORIDA 1978-79 GRAD CLASS	UNIVERSITY OF NORTH FLORIDA 1978-79 THES/DISS	UNIVERSITY OF NORTH FLORIDA 1984-85 GRAD CLASS	UNIVERSITY OF NORTH FLORIDA 1984-85 THES/DISS
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Architecture & Environmental Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Area Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Biological Sciences	7.2	0.0	8.1	1.0	.9	0.0	3.4	0.0
Business & Management	267.5	1.8	267.8	0.0	199.1	0.0	208.7	0.0
Communications	0.0	0.0	0.0	0.0	20.9	0.0	11.8	0.0
Computer & Information Sciences	16.0	0.0	23.4	0.0	.3	0.0	7.0	0.0
Education	430.5	0.0	402.1	0.0	387.6	0.0	298.8	0.0
Engineering	29.7	0.0	9.2	1.0	0.0	0.0	0.0	0.0
Fine & Applied Arts	15.6	0.0	10.2	0.0	2.2	0.0	1.2	0.0
Foreign Languages	1.9	0.0	6.1	0.0	0.0	0.0	0.0	0.0
Health Professions	56.3	0.0	60.1	0.0	11.1	0.0	33.7	0.0
Home Economics	49.9	0.0	23.4	0.0	0.0	0.0	0.0	0.0
Law	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Letters	10.4	0.0	15.3	0.0	2.6	0.0	5.2	0.0
Library Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	9.2	0.0	6.1	0.0	4.4	0.0	10.2	0.0
Physical Sciences	3.5	0.0	1.0	0.0	.6	0.0	0.0	0.0
Psychology	13.4	0.0	10.2	1.0	57.0	0.0	43.8	0.0
Public Affairs & Services	103.0	0.0	119.1	1.0	6.3	0.0	3.9	0.0
Social Sciences	18.6	0.0	51.9	0.0	5.0	0.0	11.4	0.0
Interdisciplinary	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Total	1033.0	1.8	1015.0	4.0	698.0	0.0	639.0	0.0

SOURCE: State University System, October 1985

TABLE 20

STUDENT FULL TIME EQUIVALENT (FTE) ENROLLMENT BY DISCIPLINE AND LEVEL AT SELECTED INDEPENDENT UNIVERSITIES 1984-85

DISCIPLINE	MIAMI		BARRY		FIT		NOVA**	
	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	N/A	0.0
Architecture & Environmental Design	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Area Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Biological Sciences	32.0	59.0	0.0	0.0	17.4	7.2	0.0	0.0
Business & Management	440.0	0.0	138.0	0.0	749.9	4.3	34.0**	N/A
Communications	31.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0
Computer & Information Sciences	50.0	0.0	0.0	0.0	282.0	0.0	9.0	0.0
Education	256.0	191.0	770.0*	0.0	19.4	5.7	N/A	N/A
Engineering & Related Technologies	116.0	38.0	0.0	0.0	159.3	9.7	N/A	0.0
Fine & Applied Arts	132.0	52.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign Languages	9.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Health Professions	127.0	91.0	22.0	0.0	20.0	0.0	0.0	0.0
Home Economics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Law	68.2	1188.6	0.0	0.0	0.0	0.0	0.0	687.0
Letters	28.0	34.0	25.5	0.0	0.0	0.0	0.0	0.0
Library Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	11.0	10.0	0.0	0.0	4.0	0.0	0.0	0.0
Physical Sciences	17.0	48.0	0.0	0.0	72.3	6.0	0.0	0.0
Psychology	4.0	109.0	16.0	0.0	0.0	97.4	488.0	256.0
Public Affairs & Services	26.0	0.0	65.0	0.0	1.0	0.0	N/A	N/A
Social Sciences	77.0	52.0	0.0	0.0	0.0	0.0	0.0	0.0
Interdisciplinary	43.0	34.0	74.0	0.0	0.0	0.0	0.0	N/A
TOTAL	1,482.2	1,912.6	1,119.6	0.0	1,325.3	130.3	531.0	943.0

* Estimated FTE as part-time data was supplied.

** N/A - the university did not report FTE for these disciplines or the data was incomplete.

DISCIPLINE	STETSON		JACKSONVILLE		ST. THOMAS		TOTAL	
	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE	MASTER´S	DOCTORATE
Agriculture & Natural Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Architecture & Environmental Design	0.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0
Area Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Biological Sciences	.4	0.0	0.0	0.0	0.0	0.0	49.8	46.2
Business & Management	81.7	0.0	35.0	0.0	103.0	0.0	1,581.6	4.3
Communications	0.0	0.0	0.0	0.0	0.0	0.0	40.1	0.0
Computer & Information Sciences	0.0	0.0	0.0	0.0	2.0	0.0	343.0	0.0
Education	46.8	0.0	11.0	0.0	108.0	0.0	1,211.2	189.7
Engineering & Related Technologies	0.0	0.0	0.0	0.0	0.0	0.0	275.3	47.7
Fine & Applied Arts	0.0	0.0	0.0	0.0	0.0	0.0	132.0	52.0
Foreign Languages	0.0	0.0	0.0	0.0	0.0	0.0	9.0	6.0
Health Professions	0.0	0.0	0.0	0.0	35.0	0.0	204.0	91.0
Home Economics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Law	0.0	488.0	0.0	0.0	0.0	159.0	68.2	2,522.6
Letters	6.9	0.0	0.0	0.0	23.0	0.0	83.4	34.0
Library Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	.9	0.0	0.0	0.0	0.0	0.0	15.9	10.0
Physical Sciences	0.0	0.0	0.0	0.0	0.0	0.0	89.3	54.0
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	508.0	462.4
Public Affairs & Services	0.0	0.0	0.0	0.0	0.0	0.0	92.0	0.0
Social Sciences	1.7	0.0	0.0	0.0	0.0	0.0	78.7	52.0
Interdisciplinary	0.0	0.0	0.0	0.0	0.0	0.0	117.0	34.0
TOTAL	138.4	488.0	46.0	0.0	271.0	159.0	4,913.5	3,632.9

SOURCE: Selected Independent Institutions, October 1985

Degree and Enrollment Trends in Individual Disciplines

Depending upon the discipline or institution under consideration, it is possible to draw a variety of conclusions from the preceding six tables (Tables 15-20). A brief discussion of the degree and enrollment trends for selected individual disciplines is included below to highlight these observations. When analyzing data for discrete years as presented in this section and contained in Tables 15-20, it is important to note the limitations of the statistics. The possibility exists that the data for any one year may be irregular and these irregularities would not be captured by analyzing specific intervals. It should also be noted that few observations can be drawn on the FTE enrollment data because the Board of Regents was unable to provide these data for each discipline by master's and doctoral categories; rather the Board categorizes enrollment as graduate classroom or thesis/dissertation. For this reason, all observations on enrollment trends in specific disciplines refer to combined graduate FTE data. Also, the lack of available FTE data from Nova University for several disciplines prevents a meaningful analysis of FTE enrollment for the independent sector.

Agriculture and Natural Sciences

The University of Florida is the only institution which offers master's and doctoral programs in this discipline. The number of doctoral degrees has increased slightly from 25 awarded in 1971-72 to 32 in 1984-85. At the master's level, the number of degrees also increased from 83 in 1971-72 to 104 in 1984-85. The represents a growth of over 25 percent at both the master's and doctoral level. Part of this increase can be attributed to the influx of foreign students in agriculture at the University of Florida.

Architecture and Environmental Design

Only Florida State University offers a Ph.D. in this discipline. Four doctorates were awarded in 1977-78, two in 1983-84, and none in 1984-85. At the master's level, the University of Florida, Florida State University, Florida A & M University and the University of Miami offer programs; however, the University of Miami has awarded only one degree to date. The total number of master's degrees awarded in the State increased significantly from 21 in 1971-72 to 126 in 1977-78. The number of degrees awarded has since declined to 95 in 1984-85. Graduate FTE data for the State University System show that the FTE enrollment for this discipline was relatively stable between 1978-79 and 1984-85 at approximately 190 FTE students annually.

Biological Sciences

Five institutions offer Ph.Ds. in biological sciences (UF, FSU, USF, UM, FIT). In the independent sector, approximately 13 degrees were awarded each year with the University of Miami awarding 12 out of 13. The University of Florida awarded 36 doctoral degrees or 69 percent of the total doctoral degrees granted by public universities in 1984-85. Five of the state universities, as well as Florida Institute of Technology and the University of Miami, offer master's degrees. The number of master's degrees awarded by the public sector decreased from 99 in 1977-78 to 69 in 1984-85. Table 21a included at the end of this section displays information on the general biology program within this discipline.

Business and Management

Of most interest when examining this discipline is the large volume of master's degrees awarded. Each of the 16 institutions included in this study offer the MBA with the independent sector awarding 66 percent of the total in 1984-85. At Florida Institute of Technology, 68 percent of the total master's degrees awarded were in this discipline; at the University of Miami, this represents 47 percent of the total. In 1984-85, 41 percent of all master's degrees awarded by the independent sector were in business; in the public sector, master's degrees in business represent only 15 percent of the total number of master's degrees awarded. The number of master's degrees awarded experienced continuous growth between 1971-72 and 1984-85; however, the number of doctorates awarded peaked in the late 1970's and has since returned to the 1971-72 level. Table 21b provides information on degrees awarded and student enrollment in the accounting program within this discipline.

Computer and Information Sciences

As expected, programs in this discipline were characterized by significant increases in student enrollments and master's degrees awarded. In the public sector, 91 master's degrees were awarded in 1984-85 and 61 master's degrees were awarded in 1983-84. In the private sector, 47 master's degrees were awarded in 1981-82 and 183 in 1984-85. Thus, in 1984-85, the independent sector awarded 67 percent of the total number of master's degrees in this discipline, of which 86 percent were awarded by one institution, Florida Institute of Technology. The first doctoral programs in the public sector began in July 1983 at the University of Florida and Florida State University. Therefore, the current data reflect an absence of doctoral degrees in the public sector. Table 21c provides the general program analysis within this discipline.

Education

The decline in master's degrees awarded in education was most striking. The independent sector awarded 354 fewer master's degrees in 1984-85 than in 1981-82; in the public sector 684 fewer master's degrees were awarded in 1984-85 than in 1977-78. The number of doctoral degrees awarded in education by the State University System during this period was relatively constant at 220 doctorates awarded annually. The only independent university to experience a large annual fluctuation was Nova University. An analysis of two specific programs, educational administration and science education are included in Tables 21d and 21e respectively at the end of this section.

Engineering

The number of engineering degrees awarded by the independent sector doubled between 1981-82 and 1984-85. The number of master's and doctoral degrees awarded by the public sector increased 24 percent and 43 percent respectively between 1977-78 and 1984-85 following a decrease of 18 percent and 30 percent between 1971-72 and 1977-78. Engineering was the only discipline to experience such a trend. Five of the nine state universities offer master's degrees in engineering; only the University of South Florida did not experience an increase in the number of degrees awarded between 1977-78 and 1984-85. All three institutions in the private sector (Miami, FIT and Nova) reported increases in the number of degrees awarded. An examination of the electrical engineering program is included in Table 21f.

Law

The University of Florida and Florida State University offer the juris doctorate in the public sector; Stetson, the University of Miami, Nova University, and St. Thomas University offer this degree in the independent sector. In 1984-85, 58 percent of the juris doctorate degrees were awarded by the independent sector and, of the total doctoral degrees granted by this sector, 67 percent were juris doctorates. In the State University System, 45 percent of the total number of doctorates were juris doctorates.

Letters

Programs in this category include English, literature, speech, and linguistics. Seven state universities offer master's degrees in this discipline and three offer the doctoral degree as well. Four of the independent universities offer master's degrees but only the University of Miami offers the doctorate. All master's and doctoral degree programs except the University of South Florida experienced declines in student enrollments and degrees awarded during the past decade. Recent trends in the English program within this field are contained in Table 21g.

Mathematics

Graduate enrollments in mathematics have remained relatively stable during the past decade or more. Approximately 18 doctorates are awarded annually in the State by the public sector; about 60 master's degrees are awarded annually in the State by both sectors. At the master's level, mathematics experienced a slight decrease in the number of degrees awarded between 1971-72 and 1978-79 and a slight increase between 1977-78 and 1984-85.

Physical Sciences

In the independent sector, the number of master's and doctoral degrees awarded have increased. In 1981-82, 24 master's degrees were awarded in the physical sciences; in 1984-85, 45 master's degrees were awarded. In the State University System, however, graduate degrees in the physical sciences have declined -- 96 doctorates were awarded in 1971-72 and 66 in 1984-85; 164 master's degrees were awarded in 1971-72 and 80 in 1984-85. An examination of the chemistry program is included in Table 21h.

Psychology

The doctorate in psychology is awarded by the University of Florida, Florida State University, the University of South Florida, the University of Miami, Florida Institute of Technology and Nova University. The independent sector awarded 64 percent of the total number of doctorates granted in this discipline in 1984-85. Nova University offers both the Ph.D. and Psy.D. and the total number of doctorates reported by that institution represent a combined figure of both types of doctorates. With the exception of Florida State University, each institution reported increases in the number of doctorates awarded. At the master's level, the independent sector had an increase in the number of degrees awarded, however, decreases were evident in the State University System. In 1977-78, 153 master's degrees were awarded in the State University System while 136 were awarded in 1983-84 and 120 in 1984-85.

Public Affairs and Services

The State University System accounts for approximately ten doctorates a year in these areas; while 49 were awarded by Nova University in 1981-82 and 34 were awarded in 1984-85. The number of master's degrees awarded by the State University System increased significantly from 149 in 1971-72 to 359 in 1977-78; and decreased to approximately 265 being awarded for the past few years. Most of the decrease in the number of master's degrees awarded in the public sector can be attributed to Florida State University. Barry University and Nova University experienced a decrease in the number of master's degrees awarded from 281 in 1981-82 to 127 in 1984-85.

Social Sciences

As expected, both sectors experienced decreases in the number of social sciences graduate degrees awarded between 1971-72 and 1984-85. The most significant decrease was in the number of master's degrees awarded by the State University System: 292 in 1971-72; 199 in 1977-78; and 136 in 1984-85. The number of doctorates awarded did not experience a decrease until after 1977-78. The FTE enrollment since 1978-79 has been fairly stable.

Tables 21a-h contain a statistical account for graduate enrollments and degrees awarded for eight discrete programs. Student profile information appears in Appendix A for these same programs. Similar statistical displays are available for the more than 200 different graduate programs offered in the State; however, additional tables of this type are being excluded from this report in the interest of space.

TABLE 21a

DISCIPLINE: BIOLOGICAL SCIENCES (LIFE SCIENCES)

PROGRAM: GENERAL BIOLOGY
26.0101

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS - HEADCOUNT; INDEPENDENT - FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984			
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs			
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85						
UF												
FSU	19	19	13	11	8	13	45	60	160	16.9%		
USF				10	2	3	1	18	11	9.1		
FAMU												
FAU	12	5	5				33		24	62.5		
FIU	(Approved 7/83)						16		16	50.0		
UNF												
UCF	8	7	5				20		19	100.0		
UWF	7	5	5				32		10	50.0		
Independent									Master's		Doctoral	
Miami		4	3		4	1	5	20	30	40.0%	16	18.8%
Barry												
FIT		4	5		1	1	17.4	7.2	46	17.0%	17	29.0%
Nova												
Stetson		0	0				.4		0	0.0		
St. Thomas												
Jacksonville												

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21b

DISCIPLINE: BUSINESS & MANAGEMENT

PROGRAM: ACCOUNTING
06.0201

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS HEADCOUNT; INDEPENDENT FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984		
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs		
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85					
UF	11	36	18				58		106	43.4%	
FSU	12	8	15				43		33	63.6	
USF	2	3	6				52		54	61.1	
FAMU											
FAU	(Approved 7/83)		5				51		44	79.5	
FIU	16	31	9				94		71	45.1	
UNF	3	11	12				63		21	100.0	
UCF	13	11	4				62		53	96.2	
UWF	(Approved 2/81)	5	17				41		35	62.9	
Independent									Master's		Doctoral
Miami		5	31				63		116	82.5%	
Barry		0	5				12		25	91.0	
FIT		0	1				1.3		1	0.0	
Nova		0	1				NR		NR	NR	
Stetson		0	8				14.7		24	70.0	
St. Thomas		0	2				16		17	94.0	
Jacksonville											

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21c

DISCIPLINE: COMPUTER & INFORMATION SCIENCES

PROGRAM: COMPUTER & INFORMATION SCIENCES, GENERAL
11.0101

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS HEADCOUNT; INDEPENDENT FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984		
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs		
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85					
UF	(Approved 7/79)	2	24	(Approved 7/83)			108		261	10.7%	
FSU	(Approved 7/83)		8	(Approved 7/83)			46	3	NR	NR	
USF											
FAMU											
FAU		4	8				54		37	75.7	
FIU	(Approved 6/80)		4	(Approved 6/84)			47	1	62	22.6	
UNF											
UCF	4	8	12		0	1	91	6	107	97.2	
UWF											
Independent									Master's		Doctoral
Miami		6	24				50		74	85.1%	
Berry											
FIT		34	135				230.3		276	53.0	
Nova		7	1				9		NR	NR	
Stetson											
St. Thomas		0	0				2		2	100.0	
Jacksonville											

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21d

DISCIPLINE: EDUCATION

PROGRAM: EDUCATION ADMINISTRATION
13.0401

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS - HEADCOUNT; INDEPENDENT - FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984			
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs			
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85						
UF	23	11	12	21	10	5	24	80	51	27.5%		
FSU	17	13	12	15	22	16	27	86	26	46.2		
USF	76	55	58	(Approved 6/79)		10	108	71	25	68.0		
FAMU	14	0	7				14		4	75.0		
FAU	103	52	50	17	18	10	72	72	29	58.6		
FIU	37	6	6				32	4	29	27.6		
UNF	93	68	29				70	8	11	100.0		
UCF	28	17	17			5	67	60	46	97.8		
UWF	69	45	104				161		37	67.6		
Independent									Master's		Doctoral	
Miami		6	19		9	6	18	47	7	NR	14	NR
Barry												
FIT		0	1		0	0	3.4	NR	3	100%		
Nova					88	104	NR	NR			NR	NR
Stetson		27	6				4.5		3	100		
St. Thomas												
Jacksonville												

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21c

DISCIPLINE: EDUCATION

PROGRAM: SCIENCE EDUCATION
13.1316

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS HEADCOUNT; INDEPENDENT FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984		
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs		
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85					
UF		8	6				17		11	45.5%	
FSU	2	2	0	3	1	2	1	4	5	20.0	
USF	2	1	0				7		5	60.0	
FAMU	1	0	6				17		10	80.0	
FAU											
FIU	1	5	2				13		7	28.6	
UNF	2	0	0				5		1	100.0	
UCF	5	4	5				14		13	100.0	
UWF	NR	NR	NR				NR		NR	NR	
Independent									Master's		Doctoral
Miami											
Barry											
FIT		7	8				11.7		9	56.0%	
Nova		11	20				NR		NR	NR	
Stetson		*0	*0	*Biology Education			*43		0	0.0	
St. Thomas											
Jacksonville											

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21f

DISCIPLINE: ENGINEERING

PROGRAM: ELECTRICAL ENGINEERING
14.1001

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS - HEADCOUNT; INDEPENDENT - FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984			
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs			
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85						
UF	20	41	50	5	6	17	125	87	389	16.2%		
FSU												
USF		6	6	(Approved 1/82)		1	32	19	49	49.0		
FAMU												
FAU	2	2	17				115	10	71	77.5		
FIU	(Approved 1/85)								1	0.0		
UNF												
UCF	6	4	11	(Approved 12/81)		3	85	2	91	98.9		
UWF												
Independent									Master's		Doctoral	
Miami		9	15		0	0	36	7	52	78.8%	6	100.0%
Barry												
FIT		10	34		1	0	64.3	6	253	45.0	38	34.0
Nova		NR	2				NR		NR			
Stetson												
St. Thomas												
Jacksonville												

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

TABLE 21g

DISCIPLINE: LETTERS

PROGRAM: ENGLISH
23.0101

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS - HEADCOUNT; INDEPENDENT - FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984			
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs			
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85						
UF	16	15	10	5	2	5	47	55	83	42.2%		
FSU	20	25	14	9	11	7	39	48	58	56.9		
USF	10	10	13	2	2	3	53	32	37	67.6		
FAMU												
FAU	6	9	10				49		16	93.8		
FIU												
UNF	(Approved 1/85)											
UCF	14	3	8				31		33	100.0		
UWF	8	4	7				24		10	60.0		
Independent									Master's		Doctoral	
Miami		4	2		3	2	20	20	36	86.1%	11	72.7%
Barry		0	3				3.5		8	50.0		
FIT												
Nova												
Stetson		3	4				5.6		0	0		
St. Thomas												
Jacksonville												

SOURCE: State University System, October 1985
Selected Independent Institutions, 1985

TABLE 21h

DISCIPLINE: PHYSICAL SCIENCES

PROGRAM: CHEMISTRY
40.0501

	DEGREES AWARDED						1984-85 ENROLLMENTS (SUS - HEADCOUNT; INDEPENDENT - FTE)		NUMBER/PERCENT OF APPLICANTS ADMITTED FALL 1984			
Institutions	Master's			Doctorates			Master's	Doctoral	Graduate Programs			
Public	1978-79	1981-82	1984-85	1978-79	1981-82	1984-85						
UF	4	4	3	16	11	21	56	105	181	29.8%		
FSU	4	10	6	14	12	14	49	37	97	33.0		
USF	4	1	1		5	3	20	17	21	57.1		
FAMU												
FAU	0	1	0				4		1	100.0		
FIU												
UNF												
UCF												
UWF												
Independent									Master's		Doctoral	
Miami		1	1		1	1	9	32	15	60.0%	30	60.0%
Barry												
FIT		0	2				3.9		11	36.0		
Nova												
Stetson												
St. Thomas												
Jacksonville												

SOURCE: State University System, October 1985
Selected Independent Institutions, October 1985

V. COST INFORMATION ON GRADUATE PROGRAMS

Legislative proviso language directed that the graduate education programs study include comparable cost information for selected programs in the public and independent sectors. Seven programs were selected for this purpose (Table 22). The first five of these programs were chosen since they represent programs for which the State contracts with independent institutions at the graduate level. In the contracting process, the Commission solicits costs on comparable programs in the public sector and negotiates an amount with an independent institution with consideration of the cost data generated. While a cost comparison is only one of a number of steps in the contract review process, it is an important consideration in the Commission's deliberation as to whether or not to recommend a specific contract to the State Board of Education. Law was chosen as an example of a professional degree program and the Master's in Business Administration (MBA) represents a program available at each of the 16 institutions which participated in this study. A similar analysis of medical school program costs at the two public and one independent medical school is currently being conducted by the Board of Regents.

To comply with the legislative charge, the Commission first examined the cost information available from the State University System and from private universities and determined that, in the current form, the data could not be utilized. For example, the Board of Regents annual cost report contains direct cost data on graduate programs which are distinguished as graduate classroom and thesis/dissertation. In contrast, the University of Miami had full cost information which distinguishes between master's and doctoral level costs.

Therefore, to facilitate the legislative charge, the Commission contracted with Paul Brinkman of the National Center for Higher Education Management Systems (NCHEMS) to design a survey instrument for generating program cost data and analyze the results of the survey. In addition, the consultant conducted an analysis of the current method for determining cost data in the public sector. It was necessary to directly generate the data on the private sector as no state group routinely collects such cost information on independent graduate programs. The consultant's report and survey instrument are contained in Appendix B. A discussion of the major findings of Brinkman's report and the implications of the analyses are presented below.

As emphasized by the consultant throughout his report, information on program costs is a vital part of state planning for higher education. The need for reliable cost information is essential because of increasing demand for graduate education, particularly in Southeast Florida, and also for use when the State negotiates contracts for the delivery of programs at independent institutions. While the need is great, the difficulty of obtaining accurate and reliable cost data on graduate education should not be underestimated. For example, master's and doctoral level education can occur at the same time in the same classroom with the same instructor, and students from different disciplines are frequently enrolled in the same class. In addition, research and graduate education costs are strongly linked and are often difficult to separate.

TABLE 22

GRADUATE PROGRAMS SELECTED FOR COST ANALYSIS

Independent Institutions		Public Institutions
	Contract Graduate Programs	
Florida Institute of Technology	1. Electrical Engineering (M.S.E.E.)	UCF, UF, USF, FAU
Barry University	2. Master of Social Work	FSU, FIU, USF
University of Miami	3. M.S. in Nursing	UF, USF
University of Miami	4. Ph.D. in Marine and Atmospheric Science	FSU, USF
University of Miami	5. Ph.D. in Biodemical Sciences	UF, USF
	Professional Degree Program	
University of Miami Nova University Stetson University St. Thomas University	6. Law	UF, FSU
	Generic Master's Program	
University of Miami Nova University Florida Institute of Technology Barry University St. Thomas University Stetson University Jacksonville University	7. Master's of Business Administration (MBA)	All nine state universities

The collection of comparative cost data adds to the complexity. Differences in accounting procedures, reporting practices, program content, and institutional structures such as multiple campuses can undermine the validity of cost comparisons among institutions. Despite the inherent problems, however, a comparative framework is an alternative preferable to having no basis at all for cost evaluation.

With the above considerations in mind, the Commission embarked on a prototype cost analysis of selected graduate programs in public and independent institutions. The objectives of the survey instrument and analysis were threefold: (1) to illustrate some aspects of graduate program costs, (2) to assess the ability of selected institutions to supply particular data elements on program costs, and (3) to comply with the legislative charge of providing comparative costs of several graduate programs in both the public and private sectors.

The survey requested data for the 1984-85 fiscal year. Institutions were asked to provide a variety of cost data for each program: direct expenditures by object, total indirect costs, personnel employed, equipment costs, average faculty salaries and an estimate of program capacity. The tabular data for each of the seven programs are contained in the consultant's report (Appendix B).

The methodology used was designed to provide insights into differences in expenditures among the selected graduate programs, and to isolate potential problems for generating comparable cost data for graduate education programs. It should be noted that the cost analysis survey only attempts to measure the expenditures of inputs and provides little information on the efficiency with which different institutions and programs provide the educational outputs. Questions such as "Is a student-faculty ratio of 10 to 1 twice as effective as a ratio of 20 to 1 ?" should not attempt to be answered with the data provided. Unfortunately, the survey demonstrates a number of data gathering and reporting problems that threaten the validity and comparability of some of the data contained in the consultant's report. For this reason, the Commission cautions against extracting the data contained in Appendix B for the purpose of making cost comparisons without identifying the following concerns:

(1) The identification of indirect program costs is the most consistent problem with the data. Great variation among institutions can be identified in the proportion of full costs attributed to indirect cost factors. One reason for this inconsistency is that public institutions are not requested on a regular basis to provide full cost data to the State and therefore, a statewide standard or framework for doing so has not been developed. Also, institutional structures such as the existence of multiple campuses make the allocation of indirect costs more difficult. Clearly, a set of conventions consistently applied by institutions must be developed before interinstitutional indirect cost data can be trusted. Furthermore, the definitions utilized in the prototype instrument for indirect costs need to be expanded.

(2) Several incongruities were noted in the survey data by the consultant - personnel with no corresponding expenditures for compensation; expenditures for personnel with no personnel listed; and the absence over several years of expenditures for equipment in programs that would be expected to need

up-to-date and expensive equipment. These incongruities were identified throughout the report.

(3) Certain institutions experienced difficulty in dissagregating costs by level for master's and doctoral programs. This problem appeared to be particularly difficult for public institutions since combined graduate program costs, instead of separate costs for master's and doctoral programs, are reported annually to the Board of Regents.

(4) Differences in program mission create variations that can reduce the utility and comparibility of the cost data (For example, a program which has a strong service role within a larger curricular setting).

(5) A concern alluded to most frequently in the institutional commentaries was a difference in quality. For example, low rates of faculty utilization for credit hour production may not be attributable to lack of students but done deliberately, and thus can be an indicator of commitment to high quality. The same is true for high faculty salaries and large expenditures for equipment and support staff.

In full consideration of the above problems and concerns, the data show that costs on a credit hour basis can vary greatly among institutions and among programs within institutions. Insights are provided on faculty productivity and rate of pay. In addition, an estimate of program capacity is provided which, in conjunction with data on credit hours actually produced, yield utilization rates that can help explain current costs and the probable direction of future costs. These data also provide the basis for obtaining cost information which the State can use when contracting with private institutions; the prototype survey instrument could be modified and used regularly in the contracting process.

The second part of the cost comparisons study involved an analysis of the cost data currently supplied by the Board of Regents to: (1) assess current cost data against state needs as measured by the degree of satisfaction with current cost data on the part of selected individuals within state government, and (2) assess current cost data within the context of data available in other states.

Two primary sources of cost data are currently available from the Board of Regents. The first source is the annual cost expenditure analysis which contains cost data by level of instruction and by discipline and institution. The levels of instruction include lower division, upper division, graduate classroom and thesis/dissertation. This cost study was modified in 1983 following the recommendations of a task force of state agency representatives and legislative staff. The other source of cost information is data provided on request by Board of Regents staff on an ad hoc basis (For example, each time the State considers contracting for educational services with the private sector or in response to special legislative requests).

In interviews with several individuals in state government, shortcomings in the current cost data were highlighted. In particular, considerable frustration was noted with the use of a graduate classroom versus thesis/dissertation breakout rather than the more conventional master's versus doctoral distinction. The primary reason for the concern is that the State's planning, start-up funding, and contracting with the private sector are based on the distinction between master's and doctoral programs.

Another problem area is the lack of data on full cost (i.e. direct plus indirect). The reason for this concern is similar to the first issue, in that many of the State's investment decisions are best made on the basis of full costs rather than direct costs. The Board of Regents analysis provides mostly direct cost data with some more aggregated data on indirect costs. The interviews also brought out the need for improved equipment cost data and information on the departmental research component of direct instructional expenditures.

The Commission also compared the cost data available on a regular basis in Florida to annual expenditure data available in several other states. On the basis of this analysis, the Commission concurs with Dr. Brinkman's conclusion that while the current cost analysis conducted by the Board of Regents meets much of the State's information needs, significant gaps exist in the data made available to state government on a regular (as opposed to an ad hoc) basis with respect to both needed information and to data made available in other states.

In contemplating an enhancement of the current system state planners must consider that an ideal system is liable to be very expensive. Considerable care needs to be taken in building a more ambitious cost analysis capability. Also, the consultant noted that users of cost data at the state level may not be satisfied with the information they receive no matter what resources are committed to the effort. The reason lies in the complexity of the educational process discussed at the beginning of this chapter and in the consultant's report. Cost data are not as separable as decision makers might like.

The strategy recommended by the consultant is to build on the current system. He suggests that two additions to the annual Board of Regents cost report would be of immediate benefit to several segments of state government: (1) including full cost data and (2) distinguishing between master's and doctoral costs. It should be emphasized that the addition of full cost data is not easily accomplished. Determining full costs involve allocation procedures which are arbitrary. However, as was expressed by several state agency representatives, full cost data are critically important for both the planning process for new programs and the contracting process for obtaining services from the private sector. Other states utilize full cost data regularly and the Board of Regents staff provides it on demand. If full costs are determined on a regular basis, conventions will be set and the opportunity and the motivation will exist to gradually refine, standardize, and otherwise improve the allocation procedures. Dr. Brinkman noted that the result would be data superior to what the Board now generates on an ad hoc basis. The data would also be more timely, and the Board staff would be relieved of numerous special requests. It should be noted also that generating full cost data is the approach the Board of Regents intends to follow in their medical cost comparisons charge.

Although other states distinguish between master's and doctoral costs, the difficulty of doing so in a meaningful way should not be underestimated. As noted previously, the same courses often serve both master's and doctoral students, course designations can be quite arbitrary, doctoral study is often inextricably linked with research, and so on. Only a concerted effort over time is likely to lead to credible data. Such an effort could include a number of detailed case studies as a means of establishing the most appropriate procedures, consultation with analysts in states that regularly gather these data and the careful preparation of conventions for institutions to follow in generating the raw data. Clearly, all parties with a stake in the outcome should be involved if significant changes are contemplated. Also, the Florida Center for Education Statistics, charged with "developing standardized formats, terminology, definitions, procedures for official Florida education statistics, and other data elements", should be involved in planning and implementing change.

Commission staff and the NCHEMS consultant met with the Board of Regents staff on the two proposed modifications in the annual cost report. Since student data on master's and doctoral program costs are available in the Student Data Course File, Board staff indicated that this modification could be made. With regard to the second recommendation on indirect costs, Board staff stated that standards and guidelines would need to be set by the State as to the appropriate indirect cost figures institutions should use when deriving full program costs. The need for such conventions was evidenced by the wide variation in indirect costs reported on the survey.

The proposed modifications in the annual expenditure report would necessitate the involvement of state and institutional representatives similar to the group which was assembled in 1983 when the most recent changes in the annual cost report were made. This planning group should examine (1) the annual report to ensure it is adequate and provides necessary cost data to the state users on a regular basis, (2) the capacity of the system to determine what can be provided on an ad hoc basis, (3) the delivery system for the cost expenditure report, and (4) the integration of the cost data into the state planning and review processes. The latter charge is in response to the concern expressed by the Board staff that the current cost data report is used only to a limited extent, and the concern that cost data available in isolation appears to be of little use to the State. In his January 9, 1986 remarks to the Commission, Dr. Brinkman noted the Board's concerns and stressed that the cost data should fit into the program review process to be useful and to assist in state planning. A survey similar to the prototype instrument used in this study could be developed for the purpose of providing comparable program cost information to the Board staff and consultants before each academic program review.

VI. EDUCATIONAL SUPPLY AND MARKET DEMAND

Proviso language directed the Commission to examine "the relationship of location of program offering as compared to market demand." As previously discussed, forecasting and surveying the job market for recipients of graduate degrees is a difficult task often plagued with incomplete and inaccurate data. The current mechanisms for predicting market demand have been characterized as not being readily responsive to change. The relevancy of market demand information for making decisions on the location of advanced graduate programs also has been disputed as the recruitment of students and competition for graduates is often national or international in scope rather than intrastate or regional. Compounding the difficulty is the fact that job opportunities fluctuate and can change significantly during the time it takes students to complete a particular program. Also, as noted in past Commission studies and the Master Plan, comparisons of supply and demand can only estimate the complex dynamics of educational supply and market demand. Economic factors as a recession can alter the market demand in certain professions. In addition, Florida experiences an annual influx of graduates from institutions outside the state. Master's and doctoral recipients also exit the state to accept employment opportunities in other states and countries. With these constraints in mind, however, the following market demand analysis on graduate degree recipients is presented.

Sources for Supply and Demand Data

At the national level, most professional associations do not engage in a costly market service for their specific academic areas. As discussed earlier, the National Research Council and National Science Foundation conduct surveys of Ph.D. recipients in broad discipline areas; however, a similar analysis for master's degree recipients is not conducted.

Although occasional surveys are conducted in specific disciplines to obtain timely manpower information on current staffing levels and projections for the future, the most frequently used source of occupational demand data in Florida is provided by the Occupational Employment Survey (OES) conducted by the Department of Labor and Employment Security. The results of the OES become the basis for the occupational demand component of the Florida Occupational Information System (FLOIS) described below.

Florida Occupational Information System (FLOIS)

The Florida Occupational Information System (FLOIS) serves as the statewide data base for delivering occupational information to those faced with career decisions and those charged with planning employment and training programs. As stated in the user's guide, the purpose of the planning component of FLOIS is to provide supply, demand and characteristics data at the state and regional levels. This information is provided to determine occupations for which training is needed to help meet labor market demands. FLOIS is designed to be a common data system for Florida, to be used by education, training, employment and economic development planners, as well as others, in a variety of agencies and programs. The information system attempts to provide a standard data base across programs so that coordination activities can be carried out more effectively.

The occupational demand component of FLOIS measures available jobs in a labor market, including jobs in which people are employed and jobs which are vacant. In FLOIS, occupational demand is represented by average annual openings that are due to growth and replacement of employees. Data on projected future occupational employment are also included. The OES report provides both projected occupational employment and average annual openings data for over 800 occupations. These are currently available for 1985 through 1990. Although the occupational demand data include jobs at all levels of training, the occupational supply data are limited to the trained workers who are available for work by occupation in postsecondary vocational schools and community colleges and therefore, are not relevant for this study.

An analysis was made of the 800 occupations in the FLOIS network to select those occupations for which graduate education may be either available or required. Appendix C contains the average annual openings (1985-90) for those occupations by the Department of Education's five reporting regions and for the State. An examination of these data clearly shows that the usefulness of the information for the purpose of determining market demand of graduate degree recipients is very limited for the following reasons:

(1) several occupations which require advanced graduate degrees are not contained in the OES survey and therefore not included in the FLOIS network;

(2) no differentiation exists among levels of education (bachelor's, master's, doctorate) required. For example, teachers (K-college) are grouped in one category. The number of teachers which may require master's or doctorates for employment are not identified; and

(3) data for occupations projected to employ only a few individuals in 1990 are suppressed at the regional level.

Despite its limitations, however, the FLOIS network represents Florida's initial effort in delivering an accessible and standard system of occupational demand data for use in state planning. In addition, at the vocational level of training, the FLOIS network links occupational demand with the number of trained workers who are available for work by occupation as reported by Florida's postsecondary vocational schools and community colleges. The expansion and modification of the Florida Occupational Information System to include colleges and universities and occupational supply data at the bachelor's, master's and doctoral level would be beneficial.

Teacher Supply and Demand

An annual report of teacher supply and demand in Florida is conducted by the Department of Education's Office of Strategy Planning and Management Information Systems. This supply and demand analysis is being highlighted because of its potential in serving as a model for other disciplines. The teacher supply and demand report includes measures of teacher demand as per the shortages identified by Florida's 67 school districts, compares the projected supply of teachers by subject field with the numbers needed, and then projects the demand of teachers through the end of the century. Teacher supply is measured not only by the number of graduates from Florida teacher education programs, but also by the number of candidates passing the Florida Teacher

Certification Examination which provides data on the large number of new teachers entering the Florida teaching profession from out-of-state. A similar analysis of supply is possible in fields other than education where the State requires a licensing examination to practice in Florida. It should be noted that the teacher supply and demand information lends itself to this simple but meaningful analysis because of the discrete market for teachers from which to secure demand data and the readily available information on teacher supply through teacher certification examination data. Several of the procedures utilized in this comparison, however, would be applicable to other disciplines and could be secured to improve the statewide occupational information system. The teacher supply and demand report also provides an excellent example of comparing the relationship of geographic location of program offering (i.e. colleges and universities) to job market demand (needs of individual school districts in the region).

Placement and Follow-up Information on Graduates

As for most university graduates, placement information for master's and doctoral recipients is incomplete. In general, more accurate information is available for Ph.D. graduates than for master's recipients. For example, the 1984-85 doctoral placement report from Florida State University provided information on the 249 doctoral degrees awarded by this university between September 1984 and August 1985. This information is provided by position classification (assistant professor, teacher, principal, etc.) and includes data on those who are still actively seeking employment. The geographic location where graduates were placed is also included in the institution's report; however, no differentiation is provided between in-field and out-of-field employment. Similar university-wide placement information on master's degree recipients is not available.

Certain colleges within universities also conduct follow-up studies on their graduates. For example, Colleges of Education are required to conduct annual follow-up studies on teacher education graduates to retain state program approval for their teacher education program. An analysis of follow-up studies conducted by eight of the nine Colleges of Education during the Commission's 1983-84 Study of Colleges of Education revealed that these follow-up reports, for the most part, provide little information as to the current status of graduate degree recipients in the field of education in the market place. Colleges of Education in Florida are not unique in this regard. Follow-up studies are expensive and time-consuming activities and most colleges do not have the resources to devote to this endeavor.

Original Surveys

Because of the limited availability of accurate and timely supply and demand data on graduate degree recipients in Florida, many institutions which are considering new programs, agencies involved in state planning and others in need of relevant manpower data have relied on the development, dissemination, and analysis of original survey instruments for obtaining supply and demand statistics for local, regional, and statewide use. Several of these surveys were shared with Commission staff by institutions and the state boards during the course of this study. Some of these surveys had been generated as part of the State's contractural process and program review activities, and these are discussed in the following section.

Uses for Supply and Demand Data

Review of Proposed and Existing Programs by the Board of Regents

The Board of Regents evaluates university proposals for new academic programs and also reviews existing academic degree programs on a five-year cycle. These program review and new program approval processes were described earlier. Among the criteria utilized by the Board in the two processes which specifically consider supply and demand information and the relationship of geographic location to market demand are the following:

(1) national or state needs for graduates of the program;

(2) requirements for and availability of specialized relationships with business, industry, government or other institutions;

(3) demographic characteristics of regions served and nature and location of employment opportunities;

(4) impact of the program on other public and private institutions, measured against the needs of particular students and of the community; and

(5) access to a similar program through the Academic Common Market of the Southern Regional Educational Board or through other contacts and agreements.

The Master Plan of the State University System states that "these criteria will be used by Board of Regents staff and external consultants in their preparation of recommendations to the Board of Regents" with regard to existing and proposed academic programs. For this reason, Commission staff requested that the Board of Regents provide relevant information on the results of surveys or other data generated as part of a program review or new program approval process which was used to measure market demand of master's and doctoral program graduates. Appendix D contains the information which was received including (1) a summary by discipline from July 1983 to the present of any market demand information collected during the course of degree program reviews, and (2) market demand information submitted by institutions requesting either new degree program planning authorization or new degree program implementation authorization.

Academic Program Contracting with Independent Postsecondary Education Institutions

Section 240.147(3), Florida Statues, states that the Commission shall "recommend to the State Board of Education contracts with independent institutions to conduct programs consistent with the state master plan for postsecondary education." State Board of Education Rule 6A-10.32(1) states that the contract program will meet state needs "unfulfilled by the state system of postsecondary education based on the principles of efficiency, effectiveness, and economy. In all cases, the program obtained through a contract must be of equal quality as similar programs in the state system of postsecondary education."

Comprehensive policies and procedures have been developed by the Commission to facilitate the review of proposals from independent institutions for academic program contracts. In the proposal review process, the unmet needs to be addressed by the contract program and also demand for program graduates must be considered. In the proposal, an institution is requested to provide any national, state, or local statistics to support the need for more people to be prepared at this level. Examples to support the program request must include a specific demand for the proposed program which has emanated from a perceived need by agencies or industries in the geographic location or specific indications of student demand for the program as evidenced by student requests or applications. Sources of supply and demand data are frequently referenced. When appropriate, surveys may be conducted by the institution and used to justify the unmet need.

Summary

The Master Plan for Florida Postsecondary Education stresses that timely and complete occupational supply and manpower demand information is necessary for effectively planning at the state and local levels. Unfortunately numerous gaps and shortcomings are evident in existing market demand data for graduate degree recipients. As stated in the Master Plan, continuous attention is needed from the Department of Labor and Employment Security, the Department of Commerce, and the Department of Education to improve these data sources and to solicit information on manpower needs regularly from the business and industrial sector.

The Commission's 1984 Study of Postsecondary Education Information recommended that a postsecondary education information clearinghouse be established to provide a single source of information to meet the policy and budget analysis and planning needs of the State. As a result, the Florida Center for Education Statistics was created by the 1985 Legislature. The Commission's study also recommended that when the Florida postsecondary education information components of the system are essentially complete and available in comparable form through the clearinghouse, demographic and labor market demand data should be added to the system. Regional and national information should also be added as appropriate for comparison purposes.

As noted in the 1984 study, additional information systems should not be created unnecessarily by the proposed clearinghouse. Rather, comparable data from existing systems should be compiled and utilized in such a way as to support more usefully the planning and policy analysis functions of state government. Accordingly, the FLOIS system could be improved and expanded to provide regional and statewide postsecondary education information particularly as it relates to baccalaureate and graduate education programs and, to the extent possible, market demand information for master's and doctoral degree recipients. As stated earlier, generating accurate and timely market demand data, especially at the graduate level is not an easy task. However, continual attention must be given to improving the process so that the best data which can be secured are available for use in state planning.

VII. CONCLUSIONS AND RECOMMENDATIONS

This technical report contains an array of statistical information related to public and independent graduate education programs in Florida. Tables and charts for displaying and updating this information have been included, and certain issues that emerge from the data relating to program planning and program costs have been identified.

Unlike other Commission reports, this study presents a quantitative assessment of graduate education programs in Florida as an initial data base. As such, it does not lead to numerous recommendations. Nonetheless, several recommendations arise from analysis of the data:

(1) The initial data base for graduate education programs contained in the pages of this report will only be useful if it is kept current. This should be an ongoing responsibility of the Florida Center for Education Statistics (FCES) in cooperation with the Board of Regents, the State Board of Community Colleges and the State Board of Independent Colleges and Universities. Bachelor's degree programs should be added to the initial data base and it should be expanded to include all independent colleges and universities. The data base currently being developed by the State Board of Independent Colleges and Universities will be one component of the final product.

(2) The data base of the Board of Regents should include FTE student enrollment data for master's and doctoral programs. Although the current system of generating FTE data by discipline for graduate classroom and thesis/dissertation was designed to be congruent with the Board of Regent's cost study, FTE student information for master's and doctoral programs would be more appropriate for comparison purposes and much more useful at the state level.

(3) As recommended in the Commission's Study of Postsecondary Education Information, when the initial education information components of the FCES data system are essentially complete and available in comparable form, demographic and labor market data should be added to the system. Several weaknesses and voids were noted in the current occupational supply and market demand information (FLOIS) especially as they relate to graduate education programs. A new MIS system should not be created; the current FLOIS system should be used as an initial base, and augmented and modified to support more usefully the planning and policy analysis functions of state government. Other sources of supply and demand data in Florida should also be considered, including health manpower supply and demand forecasts currently being developed by the Department of Health and Rehabilitative Services.

(4) As stated in the Master Plan, the new program approval and program review processes should continue to serve as the monitoring mechanisms to determine if the State has too many or too few graduate programs. These processes must be sensitive to the number of graduate programs offered to accommodate student, employer, and societal demand. New graduate education programs should be carefully planned and responsive to demonstrated need. Existing graduate programs should be reviewed through the coordinated program review process, and programs should be

strengthened when warranted. When the demand for an existing program is slight, support for weak programs should be discontinued.

(5) Two modifications should be made in the Board of Regent's annual expenditure report: (a) the report should distinguish between master's and doctoral costs, and (b) full cost data (both direct and indirect costs) should be included. These modifications should be carefully planned and implemented in collaboration with the Florida Center for Education Statistics and state agency and institutional representatives. Such an effort should include case studies as a means of establishing the most appropriate procedures, consultation with other states that regularly solicit full cost data, and the careful preparation of guidelines and conventions for institutions to follow in generating the raw data.

(6) Program cost comparisons should be an integral part of the Board of Regents academic program review process. To generate credible data and facilitate such comparisons, an instrument similar to that utilized in the current study should be incorporated before each program is reviewed on the scheduled five-year cycle. The use of a standard instrument for this purpose by public sector will also strengthen the validity of the data generated when program cost comparisons are solicited for use in the contract process with independent colleges and universities.

(7) The prototype instrument developed by the National Center for Higher Education Management Systems (NCHEMS) should be revised by the Postsecondary Education Planning Commission, based on the information received in this study, and utilized by independent institution on an ad hoc basis when an independent institution submits a proposal to the State for a program contract, or whenever public and private cost comparisons are needed.

The Commission recognizes that the quality of graduate education afforded in Florida cannot be depicted by numbers alone; but quantitative data is essential for use in state planning. Much numerical information on student enrollment and graduate degree statistics is included in the pages of this report; this was done to be consistent with the legislative charge and the purpose of the report. In some cases, reference is made to additional information and statistical analyses which are available from the Commission offices as needed.

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Appendix A

Student Profile Information on Selected Graduate Programs

STUDENT PROFILE INFORMATION

As this study was initiated a request was made by the legislative staff to examine the relationship between graduate education programs and the needs of place-bound graduate students. To comply with this request, information was requested from the State University System which would allow for the development of student profile data by discipline and institution. Both age information and part-time and full-time status were supplied for Fall 1984 by beginning and advanced graduate status.

The Master Plan emphasized the importance of graduate education in applying university knowledge and expertise to the research needs of the economy and society. One purpose of graduate education is to enable professionals, who are practicing or who plan to practice in an academic or non-academic setting,to add to their personal knowledge and to that of their profession. The Master Plan recognizes the importance of serving the needs of these practicing professionals or place-bound students.

An analysis of data is provided below. Further investigation of the place-bound issue would require examination of additional variables such as the identification of students enrolled in day or night-time courses. Additional age classifications of students would also facilitate a more indepth review of this topic. An analysis of the students being served in two discrete graduate programs follows.

Enrollment in education administration programs at the nine state universities reflects a relationship between part-time student enrollment and the availability of an education administration program at a local institution.

Over 90 percent of the students enrolled in education administration are part-time students. Slightly more than 78 percent of all students in education administration programs are between the ages of 25 and 44 with 62 percent pursuing a master's degree and 38 percent pursuing a doctoral degree. In the age classification of 44 and above there were 179 students (19%) of which 47 percent were master's students and 53 percent were doctoral students. This differs significantly from the less than 25 age group which accounted for only 2 percent of the population and had only one student reported as pursuing a doctoral degree. It can be concluded that the education administration programs are serving the educational needs of students who desire to attend on a part-time basis, which can be attributed primarily to the fact that many educators choose to pursue a graduate degree while maintaining a full-time teaching or administrative position in a local school district and therefore are likely to be residents of the geographical area served by the institution.

In contrast, the profile of the students enrolled in graduate chemistry programs is quite different. Approximately 82 percent of the graduate students in chemistry are full-time students as compared to about 10 percent in education administration. It should be noted that 36 percent of the students are less than 25 while only 2 percent of the education administration students fall into this category. Based on these two factors it does not appear that graduate programs in chemistry are serving place-bound students. The only exception to this is the University of South Florida which is the only state institution to have a higher number of part-time students than it does full-time students. Fifteen out of twenty beginning graduate students were reported as part-time in Fall of 1984. Student profiles for six programs have been included in this appendix. Due to space limitations, student profiles for other graduate programs are not included but can be generated on a need basis.

As noted earlier, when analyzing the extent to which a particular program is meeting the needs of place-bound students or whether a new program must be established to meet these needs, factors in addition to age and full time or part-time status must be considered. Through the program review and the new program approval processes, the State can utilize quantitative data such as student profile information and make a decision as to the need for a specific program for place-bound students in a particular geographic location.

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: EDUCATION ADMINISTRATION, GENERAL

UNIVERSITY	FULL TIME <25	FULL TIME 25-44	FULL TIME >44	PART-TIME <25	PART-TIME 25-44	PART-TIME >44	NR	TOTAL HEADCOUNT
UF								
BEG GRADUATE	1	1			16	2	4	24
ADV GRADUATE		6	1		56	16	1	80
FSU								
BEG GRADUATE				1	23	3		27
ADV GRADUATE	1	9	4		47	25		86
FAMU								
BEG GRADUATE		5			6	3		14
ADV GRADUATE								
USF								
BEG GRADUATE	1	8		5	87	6	1	108
ADV GRADUATE		4			47	20		71
FAU								
BEG GRADUATE		3		1	57	10	1	72
ADV GRADUATE		8	3		46	15		72
UWF								
BEG GRADUATE		13	5	6	107	30		161
ADV GRADUATE								
UCF								
BEG GRADUATE		1	1	3	54	8		67
ADV GRADUATE		4	1		47	8		60
FIU								
BEG GRADUATE		1	1	2	22	6		32
ADV GRADUATE					3	1		4
UNF								
BEG GRADUATE		1		2	57	10		70
ADV GRADUATE					8			8
TOTAL SUS	3	64	16	20	683	163	7	956

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: CHEMISTRY

	FULL TIME			PART-TIME			NR	TOTAL
UNIVERSITY	<25	25-44	>44	<25	25-44	>44		HEADCOUNT
UF								
BEG GRADUATE	38	16	0	2	0	0	0	56
ADV GRADUATE	17	73	0	0	15	0	0	105
FSU								
BEG GRADUATE	29	18	0	0	0	0	0	49
ADV GRADUATE	3	28	0	0	6	0	0	37
FAMU								
BEG GRADUATE								
ADV GRADUATE								
USF								
BEG GRADUATE	4	1	0	8	7	0	0	20
ADV GRADUATE	0	3	0	1	13	0	0	17
FAU								
BEG GRADUATE	1	3	0	0	0	0	0	4
ADV GRADUATE	0	0	0	0	0	0	0	0
UWF								
BEG GRADUATE								
ADV GRADUATE								
UCF								
BEG GRADUATE								
ADV GRADUATE								
FIU								
BEG GRADUATE								
ADV GRADUATE								
UNF								
BEG GRADUATE								
ADV GRADUATE								
TOTAL SUS	92	142	1	11	42	0	0	288

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: ELECTRICAL ENGINEERING

	FULL TIME			PART-TIME			NR	TOTAL
UNIVERSITY	<25	25-44	>44	<25	25-44	>44		HEADCOUNT
UF								
BEG GRADUATE	41	40		6	19		19	125
ADV GRADUATE	4	36		3	43		1	87
FSU								
BEG GRADUATE								
ADV GRADUATE								
FAMU								
BEG GRADUATE								
ADV GRADUATE								
USF								
BEG GRADUATE	5	7		3	16	1		32
ADV GRADUATE	1	6			12			19
FAU								
BEG GRADUATE	10	16		29	58	1	1	115
ADV GRADUATE		1			8	1	1	11
UWF								
BEG GRADUATE								
ADV GRADUATE								
UCF								
BEG GRADUATE	5	9		14	55	2		85
ADV GRADUATE		1			1			2
FIU								
BEG GRADUATE								
ADV GRADUATE								
UNF								
BEG GRADUATE								
ADV GRADUATE								
TOTAL SUS	66	116		55	212	5	22	476

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: COMPUTER & INFORMATIONAL SCIENCES, GENERAL

UNIVERSITY	FULL TIME			PART-TIME			NR	TOTAL
	<25	25-44	>44	<25	25-44	>44		HEADCOUNT
UF								
BEG GRADUATE	14	42	1	9	33	1	8	108
ADV GRADUATE								
FSU								
BEG GRADUATE	8	10		4	24			46
ADV GRADUATE	1	1			1			3
FAMU								
BEG GRADUATE								
ADV GRADUATE								
USF								
BEG GRADUATE								
ADV GRADUATE								
FAU								
BEG GRADUATE	3	8	1	8	32	2		54
ADV GRADUATE								
UWF								
BEG GRADUATE								
ADV GRADUATE								
UCF								
BEG GRADUATE	12	16		13	47	3		91
ADV GRADUATE		2			4			6
FIU								
BEG GRADUATE	2	9		2	32	2		47
ADV GRADUATE					1			1
UNF								
BEG GRADUATE								
ADV GRADUATE								
TOTAL SUS	40	88	2	36	174	8	8	356

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: ACCOUNTING

	FULL TIME			PART-TIME			NR	TOTAL
UNIVERSITY	<25	25-44	>44	<25	25-44	>44		HEADCOUNT
UF								
BEG GRADUATE	42	13		1	2			58
ADV GRADUATE								
FSU								
BEG GRADUATE	28	8		3	4			43
ADV GRADUATE								
FAMU								
BEG GRADUATE								
ADV GRADUATE								
USF								
BEG GRADUATE	20	10	1	5	14	2		52
ADV GRADUATE								
FAU								
BEG GRADUATE	9	12		8	20	2		51
ADV GRADUATE								
UWF								
BEG GRADUATE	12	13	1	2	12	1		41
ADV GRADUATE								
UCF								
BEG GRADUATE	8	8		11	33	2		62
ADV GRADUATE								
FIU								
BEG GRADUATE								
ADV GRADUATE	5	3		15	69	2		94
UNF								
BEG GRADUATE	6	9		6	38	4		63
ADV GRADUATE								
TOTAL SUS	130	76	2	51	192	13		464

STATE UNIVERSITY SYSTEM
STUDENT PROFILE INFORMATION
FOR GRADUATE PROGRAMS
FALL 1984

PROGRAM: SCIENCE EDUCATION

UNIVERSITY	FULL TIME <25	FULL TIME 25-44	FULL TIME >44	PART-TIME <25	PART-TIME 25-44	PART-TIME >44	NR	TOTAL HEADCOUNT
UF								
BEG GRADUATE	4	8		1	4			17
ADV GRADUATE								
FSU								
BEG GRADUATE					1			1
ADV GRADUATE		1	1		1	1		4
FAMU								
BEG GRADUATE	6	4		1	6			17
ADV GRADUATE								
USF								
BEG GRADUATE	1	1		1	4			7
ADV GRADUATE								
FAU								
BEG GRADUATE								
ADV GRADUATE								
UWF								
BEG GRADUATE	NR	NR	NR	NR	NR	NR		NR
ADV GRADUATE								
UCF								
BEG GRADUATE		1		2	10	1		14
ADV GRADUATE								
FIU								
BEG GRADUATE		1		1	10	1		13
ADV GRADUATE								
UNF								
BEG GRADUATE		1		3	1			5
ADV GRADUATE								
TOTAL SUS	11	17	1	9	37	3		78

Appendix B

Cost Analysis of Graduate Education in Florida: Survey and Assessment

Cost Analysis of Graduate Education in Florida:
Survey and Assessment

by

Paul T. Brinkman

National Center for Higher Education Management Systems

for the

Postsecondary Education Planning Commission

January 15, 1986

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A Comparison of the Costs of Selected Graduate Programs in the State of Florida

This document contains comparative data on the cost of selected graduate programs in the State of Florida, and an analysis of the current methodology for determining graduate program costs in the public sector. The data and the analysis were requested by the Florida legislature, as part of a comprehensive study on graduate programs in the state.

Information on costs is a vital part of any state's planning for, and financing of, higher education. The need for reliable cost information is particularly strong in Florida at the present time because of increasing demand for graduate education, especially in the Southeast region of the state. Graduate programs typically are expensive relative to education at the undergraduate level. At the same time, cost differentials between graduate programs are much greater on average than those between undergraduate programs, which increases the need for program specific cost data at the graduate level.

While the need is great, the difficulty of obtaining accurate and reliable cost data on graduate education should not be underestimated. Fundamentally, the difficulty stems from the nature of the underlying reality to be costed. Joint production, for instance, is endemic to graduate education. Masters and doctoral level education can go on at the same time in the same classroom with the same instructor. Students from different disciplines may be enrolled in the same class. Research and graduate education often are inextricably linked. These relationships are important for costing, because, as standard accounting practice acknowledges, joint production always entails an arbitrary allocation of costs.

The most basic reason why costing is difficult is our lack of understanding of the educational process itself. Critical aspects of the the connection between inputs and outputs remain a mystery. Hard production relationships are rare. Is a student-faculty ratio of 10 to 1 twice as effective as a ratio of 20 to 1? This type of question simply cannot be answered empirically. As a result, the meaning or import of cost data is frequently ambiguous. For instance, it is often impossible to determine whether a relatively inexpensive program is efficient or underfunded. The mystery surrounding the production function in higher education is the root cause why financing and costs are linked in a simultaneous causal relationship--the funding required depends on the cost of providing services, yet the cost of providing services depends on the level of funding. To put it another way, costs in higher education are a function of both funding decisions and the technological imperatives underlying the educational process.

Using comparative cost data adds to the complexity. Differences in accounting procedures, reporting practices, program content, and institutional structure and operations can undermine the validity of cost comparisons among institutions. Still, comparative data are a reasonable response to the costing problems posed above. An absolute framework within which to evaluate the costs of graduate programs is beyond reach at least in practical terms. Despite the inherent problems, a comparative framework is a viable alternative to having no basis at all for evaluation. It is especially appropriate in a political context in which funds must be distributed among competing entities.

Ideally, cost information would include direct and full costs, total, average, and marginal costs, start-up and continuation costs, standard costs, and completely comparable data across institutions and programs. Unfortunately, such data would not only be difficult to obtain under the best of circumstances, they would also be expensive. Information is seldom, if ever, a free good, and the law of diminishing returns must surely take hold at some point. Thus, in thinking about a strategy for obtaining information on costs, those responsible must look for a proper balance between too little and too much information. They should seek the minimum amount of information needed to serve as an adequate guide for the decision-making process at the state level.

What follows is in two parts. The first consists of a report on a prototype cost analysis of selected graduate programs in Florida. The objectives of the report are three-fold: 1) to illustrate some of the aspects of higher-education costs mentioned above, 2) to assess the ability of Florida institutions to supply particular data elements, and 3) to use the data collected to assess the comparative costs of several graduate programs in both the public and private sectors. A copy of the survey used appears at the end of this document.

The second part consists of an analysis of cost data currently supplied by the Board of Regents (BOR) for use by the executive and legislative branches of state government and the Postsecondary Education Planning Commission (PEPC), and an analysis of the cost data currently used in evaluating potential contractual arrangements with private universities. The objectives of these two analyses are two-fold: 1) to assess current cost data against state needs, as measured by the degree of satisfaction with current cost data on the part of selected individuals within state government, and 2) to assess current cost data within the context of data available in other states.

Part One

Analysis of Costs of Selected Graduate Programs

The costs analysis of selected graduate programs in Florida institutions of higher education was conducted in the late fall of 1985, and dealt with costs in fiscal year 1984-85. A standard survey form was developed and mailed to 16 institutions, with requests for data on seven graduate programs. The number of programs offered at any one of the institutions varied from just a single program at Jacksonville University to six at USF.

The survey requested several types of data on each program: direct expenditures by object of expenditure, total indirect costs, human resources employed, equipment costs, average faculty salaries, measures of program activity, and an estimate of program capacity. These data were subsequently manipulated to produce percent of expenditures by object, expenditures per credit hour, and several productivity measures.

The intent of the survey was to learn more about the cost of certain graduate programs in the state, and more about the problems inherent in developing cost data of this kind. The former was meant to be of immediate use, as the programs selected were those in which the state currently has a special interest either because it is contracting with private institutions to supply a portion of the educational services or because it contemplating expansion of those services in the public sector. The latter was meant to be helpful in planning for the long-term shape of cost analysis in Florida, or at least that portion of it designed to serve state government and its agencies.

In what follows, there are two pages of tabular data presented for each of the seven programs, except for the MBA program which has four. Accompanying the tables for each program are brief comments on aspects of the data that this observer found interesting or instructive in relation to the objectives of the study. This section of the report concludes with a discussion of the implications of the cost analysis.

M.S. in Electrical Engineering (Table 1)

Noteworthy Findings:

o Indirect costs as a proportion of full costs are reported in two ranges, one from 14 to 19 percent, the other from 34 to 40 percent. Differences of that order suggest variations in allocation procedures.

o Faculty compensation accounts for three-fifths to three-fourths of direct expenditures at four of the institutions. UCF is the exception, where the corresponding figure is one-half.

o UCF and UF have nearly the same number of administrative and support staff but UCF spends more than three times as much on their compensation. UCF also has a relatively low ratio of faculty to administrators and to support staff.

o The programs vary considerably in size as the number of credit hours taught at FAU is more than triple the number at USF. UF students are predominantly full-time while part-time students are in the majority at the other institutions.

o Direct expenditures per credit hour differ by more than two to one, comparing the highest (USF) to the lowest (UF). Relatively low faculty productivity at USF explains part of the differential, which in turn is probably a function of the relatively small size of USF's young program.

Reporting Problems:

o It seems strange that neither UF or FIT spent anything on equipment over the past three years in this type of program.

o USF found it very difficult to determine expenditures for "OCO" and "expenses" because of joint production relationships with related programs.

Florida Graduate Programs Cost Study

Table 1. M.S. in Electrical Engineering, 1984-85

	UF	UCF	USF	FAU	FIT
Expenditures					
Direct					
Faculty Compensation	$151,189	$152,498	$185,317	$248,300	$107,400
Other Compensation	$25,888	$81,897	$32,931	$50,600	$4,000
Expenses	$14,793	$22,477	$3,490	$11,700	$1,000
OCO	$0	$52,245	$3,904	$46,000	$0
Other	$0	$0	$10,727	$0	$37,590
Total Direct	$191,870	$309,117	$236,369	$356,600	$149,990
Total Indirect	$97,854	$72,369	$38,194	$233,900	$100,193
Full Cost	$289,724	$381,486	$274,563	$590,500	$250,183
Percent of Direct Exp's					
Faculty Compensation	78.8%	49.3%	78.4%	69.6%	71.6%
Other Compensation	13.5%	26.5%	13.9%	14.2%	2.7%
Expenses	7.7%	7.3%	1.5%	3.3%	0.7%
OCO	0.0%	16.9%	1.7%	12.9%	0.0%
Other	0.0%	0.0%	4.5%	0.0%	25.1%
Indirect Exp's as Percent of Full Cost	33.8%	19.0%	13.9%	39.6%	40.0%
Resources					
FTE Faculty	5.87	3.4	3.85	4.6	5.5
FTE Administrators	1	1	0.39	1	0.5
FTE Support Staff	3	2	0.55	0.9	0.5
Average Equipment Costs (over three years)	$0	$163,024	$35,252	$37,200	$0
Average PT Faculty Salary	NR	NR	$31,043	$10,500	$20,000
Average FT Faculty Salary	$54,540	$44,850	$53,763	$41,200	$44,000
Salary Index (avg = 100)	114.4	94.1	112.8	86.4	92.3
Faculty/Administrators	5.9	3.4	9.9	4.6	11.0
Faculty/Support Staff	2.0	1.7	7.0	5.1	11.0
Activity Level					
Student Credit Hours-Year	1,751	1,552	932	3,050	1,170
Student Credit Hours-Fall	955	585	445	1,120	404
Fall Headcount	185	82	50	284	101
FT Matriculants--Fall Term	170	NR	22	24	24
Degrees Awarded	63	11	7	21	34
Program Capacity	1,819	NR	1,420	2,800	1,110

Table 1. M.S. in Electrical Engineering (cont.)

	UF	UCF	USF	FAU	FIT
Expenditures per SCH					
Direct					
Faculty Compensation	$86	$98	$199	$81	$92
Other Compensation	$15	$53	$35	$17	$3
Expenses	$8	$14	$4	$4	$1
OCO	$0	$34	$4	$15	$0
Other	$0	$0	$12	$0	$32
Total Direct	$110	$199	$254	$117	$128
Total Indirect	$56	$47	$41	$77	$86
Full Cost	$165	$246	$295	$194	$214
Productivity					
SCH per FTE Faculty	298	456	242	663	213
SCH per FTE Administrator	1,751	1,552	2,384	3,050	2,340
SCH per FTE Support Staff	584	776	1,695	3,389	2,340
Actual/Capacity SCH	0.96	NA	0.66	1.09	1.05
Expenditures per SCH Index*					
Direct					
Faculty Compensation	78	88	179	73	82
Other Compensation	60	215	144	67	14
Expenses	135	231	60	61	14
OCO	0	318	40	142	0
Other	0	0	132	0	368
Total Direct	68	123	157	72	79
Total Indirect	91	76	67	125	140
Full Cost	74	110	132	87	96
Productivity Index*					
SCH per FTE Faculty	80	122	65	177	57
SCH per FTE Administrator	79	70	108	138	106
SCH per FTE Support Staff	33	44	96	193	133

*avg = 100

Masters in Social Work (Table 2)

Noteworthy Findings:

o Despite great differences in the size of the programs, the distribution of expenditures is very similar, especially for faculty compensation and indirect costs.

o Barry has an exceptionally high (efficient) ratio of faculty to administrators, but the faculty are relatively unproductive in credit-hour terms. The net result is slightly higher than average costs despite paying the lowest faculty salaries and, as the largest program, having the best chance to achieve economies of scale.

o USF's cost per credit hour are the lowest, thanks to productive faculty who are paid less than the average for the group and to very modest non-compensation expenditures.

o FSU has the most productive faculty, in credit hour terms, but their salary scale is the highest in the group. FSU also reports much higher than average non-compensation expenditures. The institution apparently is concerned with the heavy faculty teaching loads, as it indicates that the program is operating at about 50 percent beyond capacity.

o With the exception of USF, total direct and full cost per credit hour are remarkably similar.

Reporting Problems:

o Total faculty compensation at FSU seems much too high relative to the reported number of FTE faculty and the average salaries paid to full-time and part-time faculty. In general, for all programs, it appears that more data will need to be gathered and more attention will have to be given to data definitions concerning the number of faculty and their compensation.

Florida Graduate Programs Cost Study

Table 2. Masters in Social Work, 1984-85

	FSU*	FIU	USF	Barry
Expenditures				
Direct				
Faculty Compensation	$519,076	$229,706	$91,943	$644,179
Other Compensation	$104,884	$71,527	$26,878	$135,944
Expenses	$39,740	$9,449	$3,801	$42,402
OCO	$27,629	$4,838	$1,111	$2,345
Other	$0	$7,125	$94	$0
Total Direct	$691,329	$322,645	$123,827	$824,870
Total Indirect	$271,849	$129,292	$50,130	$399,352
Full Cost	$963,178	$451,937	$173,957	$1,224,222
Percent of Direct Exp's				
Faculty Compensation	75.1%	71.2%	74.3%	78.1%
Other Compensation	15.2%	22.2%	21.7%	16.5%
Expenses	5.7%	2.9%	3.1%	5.1%
OCO	4.0%	1.5%	0.9%	0.3%
Indirect Exp's as Percent of Full Cost	28.2%	28.6%	28.8%	32.6%
Resources				
FTE Faculty	6.6	5.96	2.09	11.8
FTE Administrators	1.22	1	0.32	1.5
FTE Support Staff	2.43	1	1.73	4
Average Equipment Costs (over three years)	$0	$718	$576	$1,852
Average PT Faculty Salary	$12,459			$4,378
Average FT Faculty Salary	$45,434	$42,085	$36,602	$39,404
Salary Index (avg = 100)	111.1	102.9	89.5	96.4
Faculty/Administrators	5.4	6.0	6.5	13.3
Faculty/Support Staff	2.7	6.0	1.2	5.0
Activity Level				
Student Credit Hours-Year	4,105	1,952	1,189	5,083
Student Credit Hours-Fall	2,075	792	593	2,160
Fall Headcount	169	71	146	208
FT Matriculants--Fall	121	35	42	208
Degrees Awarded	75	28	22	78
Program Capacity	2,700	2,545	1,438	NR

*On-campus program only.

Table 2. Masters in Social Work (cont.)

	FSU	FIU	USF	Barry
Expenditures per SCH				
Direct				
Faculty Compensation	$126	$118	$77	$127
Other Compensation	$26	$37	$23	$27
Expenses	$10	$5	$3	$8
OCO	$7	$2	$1	$0
Other	$0	$4	$0	$0
Total Direct	$168	$165	$104	$162
Total Indirect	$66	$66	$42	$79
Full Cost	$235	$232	$146	$241
Productivity				
SCH per FTE Faculty	622	328	569	431
SCH per FTE Administrator	3,365	1,952	3,716	3,389
SCH per FTE Support Staff	1,689	1,952	687	1,271
Actual/Capacity SCH	1.52	0.77	0.83	NR
Expenditures per SCH Index*				
Direct				
Faculty Compensation	113	105	69	113
Other Compensation	92	131	81	96
Expenses	149	74	49	128
OCO	254	93	35	17
Other	0	392	8	0
Total Direct	112	110	69	108
Total Indirect	105	105	67	124
Full Cost	110	109	69	113
Productivity Index*				
SCH per FTE Faculty	128	67	117	88
SCH per FTE Administrator	108	63	120	109
SCH per FTE Support Staff	121	139	49	91

*avg = 100

M.S. in Nursing (Table 3)

Noteworthy Findings:

o The differences on key items among the three institutions are extraordinary. Some of the differences are real, while others appear to be due to reporting problems.

o The most important real difference is in the way faculty are used. The student credit hour production for faculty at Miami is only a third of what it is at UF. USF's per faculty credit hour production is less than half that at UF.

o The differences in per credit hour costs are even more dramatic, but it is difficult to know just how much is actual and how much is due to reporting problems. In any case, direct and full costs at Miami are exceptionally high. Relatively low productivity in credit-hour terms on the part of all three types of personnel coupled with relatively high faculty salaries and personnel compensation result in direct costs at Miami that are more than twice those at USF and more than eight times the (highly doubtful) figure at UF. In credit hour terms, Miami is by far the smallest of the three programs, resulting in diseconomies of scale relative to the other two programs. If they operated at their stated capacity, their unit costs would still be the highest but not by such an extreme amount.

Reporting Problems:

o UF reports having 3 administrators and 4 support staff, yet no expenditures for paying these individuals are reported.

o USF reports having no administrators despite having 14 FTE personnel in the program--possible but unlikely.

Florida Graduate Programs Cost Study

Table 3. M.S. in Nursing, 1984-85

	UF	USF	Miami
Expenditures			
Direct			
Faculty Compensation	$315,861	$339,017	$359,778
Other Compensation	$0	$61,606	$84,597
Expenses	$33,732	$32,332	$37,770
OCO	$0	$13,841	$7,000
Other	$0	$108	$15,120
Total Direct	$349,593	$446,903	$504,265
Total Indirect	$178,292	$136,302	$204,732
Full Cost	$527,885	$583,205	$708,997
Percent of Direct Exp's			
Faculty Compensation	90.4%	75.9%	71.3%
Other Compensation	0.0%	13.8%	16.8%
Expenses	9.6%	7.2%	7.5%
OCO	0.0%	3.1%	1.4%
Other	0.0%	.0%	3.0%
Indirect Exp's as Percent of Full Cost	33.8%	23.4%	28.9%
Resources			
FTE Faculty	14	10.25	7.4
FTE Administrators	4	0	1.3
FTE Support Staff	3	3.76	1
Average Equipment Costs (over three years)	$0	$0	$1,250
Average PT Faculty Salary	NR	NR	$16,000
Average FT Faculty Salary	$33,031	$33,075	$40,048
Salary Index (avg = 100)	93.3	93.5	113.2
Faculty/Administrators	3.5		5.7
Faculty/Support Staff	4.7	2.7	7.4
Activity Level			
Student Credit Hours-Year	4,505	1,472	768
Student Credit Hours-Fall	1,820	583	428
Fall Headcount	242	119	57
FT Matriculants--Fall	129	22	31
Degrees Awarded	47	19	16
Program Capacity	5,500	1,260	1,200

Table 3. M.S. in Nursing (cont.)

	UF	USF	Miami
Expenditures per SCH			
Direct			
Faculty Compensation	$70	$230	$468
Other Compensation	$0	$42	$110
Expenses	$7	$22	$49
OCO	$0	$9	$9
Other	$0	$0	$20
Total Direct	$78	$304	$657
Total Indirect	$40	$93	$267
Full Cost	$117	$396	$923
Productivity			
SCH per FTE Faculty	322	144	104
SCH per FTE Administrator	1,126	---	591
SCH per FTE Support Staff	1,502	391	768
Actual/Capacity SCH	0.82	1.17	0.64
Expenditures per SCH Index*			
Direct			
Faculty Compensation	27	90	183
Other Compensation	0	83	217
Expenses	29	84	188
OCO	0	152	148
Other	0	1	299
Total Direct	22	88	190
Total Indirect	30	70	201
Full Cost	24	83	193
Productivity Index*			
SCH per FTE Faculty	170	76	55
SCH per FTE Administrator	131	---	69
SCH per FTE Support Staff	169	44	87

*avg = 100

Ph.D. in Marine and Atmospheric Science (Table 4)

Noteworthy Findings:

- Miami incurs much higher "expenses" to operate its program. This expenditure category accounted for nearly 26 percent of total direct costs, compared to 13 and 5.4 percent at FSU and USF, respectively.
- Miami's indirect costs are far higher on a per credit hour basis than at either FSU or USF.
- Average equipment costs are considerable in all three programs.
- Faculty productivity, on a credit-hour basis, is highest at FSU; this is a major reason why direct costs per credit hour at FSU are less than half as high as they are at USF, although it is also true that faculty salaries are considerably higher at USF.
- Course taking patterns at the three institutions are obviously very different. At USF in the fall of 1984, 19 students (11 full-time and 8 part-time) took only 51 total credits, or an average of 2.7 per headcount student. At FSU, the comparable average was 10.2 and at Miami it was 5.4.

Reporting Problems:

- The wide disparity in indirect costs as a percent of full costs suggests a problem with respect to reporting indirect costs.
- The USF program is very small and only three years old. It is reasonable to attribute some portion of its exceptionally high costs per credit hour to these characteristics. It is difficult, however, to make an adjustment in quantitative terms.

Florida Graduate Programs Cost Study

Table 4. Ph.D. in Marine and Atmospheric Science, 1984-85

	FSU	USF	Miami
Expenditures			
Direct			
Faculty Compensation	$279,515	$175,644	$1,021,800
Other Compensation	$81,516	$67,196	$63,200
Expenses	$79,600	$14,305	$389,400
OCO	$170,175	$6,347	$0
Other	$0	$1,700	$36,600
Total Direct	$610,806	$265,192	$1,511,000
Total Indirect	$44,688	$4,774	$1,234,900*
Full Cost	$655,494	$269,966	$2,745,900
Percent of Direct Exp's			
Faculty Compensation	45.8%	66.2%	67.6%
Other Compensation	13.3%	25.3%	4.2%
Expenses	13.0%	5.4%	25.8%
OCO	27.9%	2.4%	0.0%
Other	0.0%	0.6%	2.4%
Indirect Exp's as Percent of Full Cost	6.8%	1.8%	45.0%
Resources			
FTE Faculty	6.08	2.99	18
FTE Administrators	0.54	0.21	2
FTE Support Staff	3.35	2.27	1.5
Average Equipment Costs (over three years)	$116,358	$28,190	$50,000
Average PT Faculty Salary	$24,496	NR	NR
Average FT Faculty Salary	$43,428	$50,428	$46,260
Salary Index (avg = 100)	93.0	108.0	99.0
Faculty/Administrators	11.3	14.2	9.0
Faculty/Support Staff	8.4	12.3	18.7
Activity Level			
Student Credit Hours-Year	661	113	1,935
Student Credit Hours-Fall	264	51	1,025
Fall Headcount	26	19	188
FT Matriculants--Fall	20	11	188
Degrees Awarded	19	2	25
Program Capacity	1,518	320	1,935

*Miami's indirect costs include $390,000 in graduate student stipends and tuition waivers.

Table 4. Ph.D. in Marine and Atmospheric Science (cont.)

	FSU	USF	Miami
Expenditures per SCH			
Direct			
Faculty Compensation	$423	$1,554	$528
Other Compensation	$123	$595	$33
Expenses	$120	$127	$201
OCO	$257	$56	$0
Other	$0	$15	$19
Total Direct	$924	$2,347	$781
Total Indirect	$68	$42	$638
Full Cost	$992	$2,389	$1,419
Productivity			
SCH per FTE Faculty	109	38	108
SCH per FTE Administrator	1,224	538	968
SCH per FTE Support Staff	197	50	1,290
Actual/Capacity SCH	0.44	0.35	1.00
Expenditures per SCH Index*			
Direct			
Faculty Compensation	51	186	63
Other Compensation	49	238	13
Expenses	81	85	135
OCO	246	54	0
Other	0	133	167
Total Direct	68	174	58
Total Indirect	27	17	256
Full Cost	62	149	89
Productivity Index*			
SCH per FTE Faculty	128	45	127
SCH per FTE Administrator	135	59	106
SCH per FTE Support Staff	39	10	252

*avg = 100

Ph.D. in Basic Medical Science (Table 5)

Noteworthy Findings:

- The percentage distribution of direct expenditures by line item is more varied for this program than for any other in the study. Miami reports exceptionally large expenditures for "expenses", while UF and Miami have large "other" direct expenditures.

- UF reports very low indirect costs on a percentage basis. As in several other programs in the study, the differences in indirect cost relative to the full cost of the program are remarkable.

- Differences in direct costs per credit hour are also very large. This is also true for the other medical (nursing) and the other doctoral program (marine science) in the study, but less so for the remaining programs.

- Almost all of the students in the three programs are full-time. They average about 9 credits apiece per semester at USF and Miami, but only about half that at UF.

- On a per credit hour basis, total direct costs at Miami are twice what they are at UF or USF. This is due to a combination of relatively low faculty productivity and to the high non-personnel expenditures mentioned earlier. Per-credit-hour full costs at UF and USF are nearly identical.

Reporting Problems:

- As the footnotes to Table 5 indicate, the "other" expenses contain items that create substantial comparability problems.

- The absence of equipment costs at UF and USF is not what one would expect for this type of program, and may reflect a reporting problem.

Florida Graduate Programs Cost Study

Table 5. Ph.D. in Basic Medical Science, 1984-85

	UF	USF	Miami
Expenditures			
Direct			
Faculty Compensation	$1,239,914	$236,718	$1,126,000
Other Compensation	$64,407	$55,717	$130,000
Expenses	$169,817	$25,400	$524,000
OCO	$102,020	$15,213	$0**
Other	$258,838*	$218	$589,000***
Total Direct	$1,834,996	$333,266	$2,369,000
Total Indirect	$293,311	$177,956	$1,450,000
Full Cost	$2,128,307	$511,222	$3,819,000
Percent of Direct Exp's			
Faculty Compensation	67.6%	71.0%	47.5%
Other Compensation	3.5%	16.7%	5.5%
Expenses	9.3%	7.6%	22.1%
OCO	5.6%	4.6%	0.0%
Other	14.1%	0.1%	24.9%
Indirect Exp's as Percent of Full Cost	13.8%	34.8%	38.0%
Resources			
FTE Faculty	13.52	4.1	19.2
FTE Administrators	0.5	0.02	2.6
FTE Support Staff	2.53	2.21	1.6
Average Equipment Costs (over three years)	$0	$0	$200,000
Average PT Faculty Salary	NR	NR	NR
Average FT Faculty Salary	$46,471	$57,736	$48,000
Salary Index (avg = 100)	91.6	113.8	94.6
Faculty/Administrators	27.0	205.0	7.4
Faculty/Support Staff	5.3	1.9	12.0
Activity Level			
Student Credit Hours-Year	1,721	402	1,138
Student Credit Hours-Fall	632	179	592
Fall Headcount	140	20	78
FT Matriculants--Fall	140	18	78
Degrees Awarded	20	6	8
Program Capacity	1,750	4,257	2,000

*Covers Animal Resources, Bioengineering, Learning Resources, Teaching Labs, Children's M.H. Unit and unfunded depreciation, equipment, and buildings.

**Unable to allocate a portion of $500,000 attributable to all medical programs.

***Entire sum is for graduate student stipends.

Table 5. Ph.D. in Basic Medical Science (cont.)

	UF	USF	Miami
Expenditures per SCH			
Direct			
Faculty Compensation	$720	$589	$989
Other Compensation	$37	$139	$114
Expenses	$99	$63	$460
OCO	$59	$38	$0
Other	$150	$1	$518
Total Direct	$1,066	$829	$2,082
Total Indirect	$170	$443	$1,274
Full Cost	$1,237	$1,272	$3,356
Productivity			
SCH per FTE Faculty	127	98	59
SCH per FTE Administrator	3,442	20,100	438
SCH per FTE Support Staff	680	182	711
Actual/Capacity SCH	0.98	0.09	0.57
Expenditures per SCH Index*			
Direct			
Faculty Compensation	94	77	129
Other Compensation	39	143	118
Expenses	48	30	222
OCO	183	117	0
Other	67	0	232
Total Direct	80	63	157
Total Indirect	27	70	203
Full Cost	63	65	172
Productivity Index*			
SCH per FTE Faculty	134	103	62
SCH per FTE Administrator	43	251	5
SCH per FTE Support Staff	130	35	136

*avg = 100

Law (Table 6)

Noteworthy Findings:

o The private institutions spend far less on faculty compensation as a percent of total direct costs than do the public institutions, in part because faculty salaries at the public institutions are higher. UF employs more than twice as many FTE faculty than FSU does, but their expenditures for faculty compensation are the same, with the result that faculty costs per credit hour are relatively low at UF and relatively high at FSU.

o Library expenditures are fairly consistent and do not seem to be related to the size of the program.

o Law programs apparently require a large number of support staff. Faculty to support-staff ratios are relatively consistent across the five programs and much lower than in other programs in the study.

o Full-time students predominate in all the programs except UF's.

o Faculty productivity on a per-credit hour basis is quite consistent across the five institutions, especially relative to other types of graduate programs in the study.

o Except for UF, direct costs per credit hour are exceptionally consistent across these institutions.

Reporting Problems:

o Stetson includes general institutional support under "other" direct expenditures instead of under indirect costs where it would usually be found, and in that same "other" expenditures category FSU and Nova have included items (books and capital costs, respectively) that are also likely to cause comparability problems.

Florida Graduate Programs Cost Study

Table 6. Law, 1984-85

	UF	FSU	Nova	Stetson	St. Thomas
Expenditures					
Direct					
Faculty Compensation	$2,222,333	$2,407,513	$1,541,000	$1,322,534	$286,522
Other Compensation	$454,064	$442,979	$678,000	$778,961	$306,155
Expenses	$212,807	$284,328	$472,000	$260,393	$234,341
OCO	$90,645	$73,762	$61,000	$419,040	$0
Special Library	$535,000	$407,876	$667,000	$529,407	$402,883
Other	$0	$507,626*	$690,000**	$397,119***	$0
Total Direct	$3,514,849	$4,124,104	$4,109,000	$3,707,454	$1,229,901
Total Indirect	$1,792,573	$1,005,104	$581,000	$0	$547,395
Full Cost	$5,307,422	$5,129,208	$4,690,000	$3,707,454	$1,777,296
Percent of Direct Exp's					
Faculty Compensation	63.2%	58.4%	37.5%	35.7%	23.3%
Other Compensation	12.9%	10.7%	16.5%	21.0%	24.9%
Expenses	6.1%	6.9%	11.5%	7.0%	19.1%
OCO	2.6%	1.8%	1.5%	11.3%	0.0%
Special Library	15.2%	9.9%	16.2%	14.3%	32.8%
Other	0.0%	12.3%	16.8%	10.7%	0.0%
Indirect Exp's as Percent of Full Cost	33.8%	19.6%	12.4%	0.0%	30.8%
Resources					
FTE Faculty	51.48	22.35	28	23.5	7
FTE Administrators	7	3.95	9	11.5	2
FTE Support Staff	41.95	30	33	80	8
Average Equipment Costs (over three years)	$0	$84,052	$69,721	$35,000	$1,193
Average PT Faculty Salary	NR	NR	$7,188	$4,000	NR
Average FT Faculty Salary	$74,464	$69,468	$41,581	$45,405	$58,429
Salary Index (avg = 100)	154.4	144.1	86.2	94.2	121.2
Faculty/Administrators	7.4	5.7	3.1	2.0	3.5
Faculty/Support Staff	1.2	0.7	0.8	0.3	0.9
Activity Level					
Student Credit Hours-Year	35,732	17,878	18,993	16,290	5,640
Student Credit Hours-Fall	17,688	8,402	10,228	7,495	2,820
Fall Headcount	1,153	595	697	529	188
FT Matriculants--Fall	216	560	695	529	188
Degrees Awarded	347	189	190	181	0
Program Capacity	36,000	18,000	22,503	19,782	5,640

*Book OCO; **Includes capital costs; ***Includes institutional support.

Table 6. Law (cont.)

	UF	FSU	Nova	Stetson	St. Thomas
Expenditures per SCH					
Direct					
Faculty Compensation	$62	$135	$81	$81	$51
Other Compensation	$13	$25	$36	$48	$54
Expenses	$6	$16	$25	$16	$42
OCO	$3	$4	$3	$26	$0
Special Library	$15	$23	$35	$32	$71
Other	$0	$28	$36	$24	$0
Total Direct	$98	$231	$216	$228	$218
Total Indirect	$50	$56	$31	$0	$97
Full Cost	$149	$287	$247	$228	$315
Productivity					
SCH per FTE Faculty	694	800	678	693	806
SCH per FTE Administrator	5,105	4,526	2,110	1,417	2,820
SCH per FTE Support Staff	852	596	576	204	705
Actual/Capacity SCH	0.99	0.99	0.84	0.82	1.00
Expenditures per SCH Index*					
Direct					
Faculty Compensation	76	164	99	99	62
Other Compensation	36	71	102	136	155
Expenses	29	76	119	77	199
OCO	36	58	45	361	0
Special Library	42	65	99	92	202
Other	0	159	204	137	0
Total Direct	50	116	109	115	110
Total Indirect	107	120	65	0	207
Full Cost	61	117	101	93	129
Productivity Index*					
SCH per FTE Faculty	95	109	92	94	110
SCH per FTE Administrator	160	142	66	44	88
SCH per FTE Support Staff	145	102	98	35	120

*avg = 100

Masters in Business Administration (Table 7)

Noteworthy Findings:

o Faculty compensation accounts for 70 percent of direct costs on average, but the range is 38 to 93 percent across the 15 institutions.

o Full-time faculty salaries average about $13,000 less at the private institutions.

o On average, indirect costs make up about 30 percent of full costs; the average is about the same for public as for private institutions, but the range within the public institutions (12.8 to 54.4 percent) is greater.

o Both the public and private programs are operating at about 70 percent of reported capacity.

o Faculty at UF are three times as productive, in per-credit-hour terms, than their counterparts at FSU. Overall, the difference in faculty productivity across the 15 institutions is considerable.

o On average, total direct costs per credit hour are 37 percent higher at the public institutions ($175 compared to $110). FAMU's program, perhaps because of its very small size, has the highest direct average costs with FSU and UF next highest.

Reporting Problems:

o It is unlikely that FAMU's program requires no administrative or clerical support as reported, even though it is a small program.

o FSU reports graduate assistantships under "other" expenditures.

o USF reports adjunct faculty salaries under "administrative and other compensation" expenditures.

Florida Graduate Programs Cost Study

Table 7. Masters in Business Administration, 1984-85

	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF	Barry	FIT	Jacksonville	Nova	Stetson	St. Thomas
Expenditures															
Direct															
Faculty Compensation	$464,478	$527,586	$88,189	$475,368	$154,149	$202,133	$234,470	$394,576	$658,800	$220,859	$377,968	$53,823	$489,000	$135,000	$26,200
Other Compensation	$172,844	$121,757*	$10,175	$131,494**	$39,978	$50,304	$97,058	$61,216	$150,660	$37,334	$39,361	$2,800	$325,000	$18,000	$31,214
Expenses	$17,736	$32,872	$88,824	$31,081	$8,025	$8,779	$16,674	$9,550	$15,715	$75,898	$22,793	$1,087	$460,000	$4,000	$3,121
OCO	$7,436	$14,300	$7,700	$11,175	$3,386	$0	$9,285	$0	$0	$1,222	$0	$0	$3,000	$0	$0
Other	$0	$98,038	$0	$2,404	$0	$7,050	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Direct	$662,494	$794,553	$194,888	$651,522	$205,538	$268,266	$357,487	$465,342	$825,175	$335,313	$440,122	$57,710	$1,277,000	$157,000	$60,535
Total Indirect	$317,472	$189,922	$28,507	$350,911	$244,859	$219,416	$133,602	$175,922	$463,715	$243,791		$40,655	$290,000	$127,000	$27,370
Full Cost	$979,966	$984,475	$223,395	$1,002,433	$450,397	$487,682	$491,089	$641,264	$1,288,890	$579,104	$440,122	$98,365	$1,567,000	$284,000	$87,905
Percent of Direct Exp's															
Faculty Compensation	70.1%	66.4%	45.3%	73.0%	75.0%	75.3%	65.6%	84.8%	79.8%	65.9%	85.9%	93.3%	38.3%	86.0%	43.3%
Other Compensation	26.1%	15.3%	5.2%	20.2%	19.5%	18.8%	27.2%	13.2%	18.3%	11.1%	8.9%	4.9%	25.5%	11.5%	51.6%
Expenses	2.7%	4.1%	45.6%	4.8%	3.9%	3.3%	4.7%	2.1%	1.9%	22.6%	5.2%	1.9%	36.0%	2.5%	5.2%
OCO	1.1%	1.8%	4.0%	1.7%	1.6%	0.0%	2.6%	0.0%	0.0%	0.4%	0.0%	0.0%	0.2%	0.0%	0.0%
Other	0.0%	12.3%	0.0%	0.4%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indirect Exp's as Percent of Full Cost	32.4%	19.3%	12.8%	35.0%	54.4%	45.0%	27.2%	27.4%	36.0%	42.1%	0.0%	41.3%	18.5%	44.7%	31.1%
Resources															
FTE Faculty	4.7	8.68	3	11.53	4.98	4.4	5.25	6.5	12	7	5.9	2	8	3	2
FTE Administrators	2	1.07	0	1.7	0.23	0.27	2.58	1.05	1	2	1.3	1	4	0.25	0.5
FTE Support Staff	2.5	3.11	0	4.11	0.33	1.66	1.5	0.67	2	2	1.5	0.5	7	0.5	0.1
Average Equipment Costs (over three years)	$0	$5,390	$21,470	$6,045	$38,000	$10,000	$843	$2,000	$3,000	$6,003	$7,100	$0	$3,000	$2,000	$150
Average PT Faculty Salary	$12,300	NR	NR	NR	$6,861	$7,600	NR	NR	$5,490	$5,465	$3,600	$2,970	$10,000	NR	NR
Average FT Faculty Salary	$54,175	$50,275	$52,914	$50,711	$40,678	$37,502	$44,660	$49,584	$45,000	$31,551	$41,352	$28,963	$36,000	$46,045	$22,500
Salary Index (avg = 100)	128.6	119.3	125.6	120.4	96.6	89.0	106.0	117.7	106.8	74.9	98.2	68.8	85.5	109.3	53.4
Faculty/Administrators	2.4	8.1	---	6.8	21.7	16.3	2.0	6.2	12.0	3.5	4.5	2.0	2.0	12.0	4.0
Faculty/Support Staff	1.9	2.8	---	2.8	15.1	2.7	3.5	9.7	6.0	3.5	3.9	4.0	1.1	6.0	20.0
Activity Level															
Student Credit Hours-Year	4,649	2,883	407	8,514	3,505	2,999	2,865	2,750	5,136	3,103	3,039	807	15,030	1,062	576
Student Credit Hours-Fall	2,584	1,074	136	3,342	1,317	1,394	1,225	1,120	2,021	1,147	828	287	3,789	507	180
Fall Headcount	191	118	10	574	436	295	289	241	299	191	378	65	647	73	32
FT Matriculants--Fall	191	90	10	131	100	86	20	43	55	53	75	6	632	52	18
Degrees Awarded	82	43	4	104	64	90	38	35	80	46	124	23	314	22	15
Program Capacity	5,331	4,200	1,221	11,670	6,670	4,200	2,925	4,500	5,580	---	3,000	1,625	15,030	1,248	864

*Includes graduate assistantships.
**Includes salaries for adjunct faculty.

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Table 7. Masters in Business Administration (cont.)

	UF	FSU	FAMU	USF	FAU	UWF	UCF	FIU	UNF	Barry	FIT	Jacksonville	Nova	Stetson	St. Thomas
Expenditures per SCH															
Direct															
Faculty Compensation	$100	$183	$217	$56	$44	$67	$82	$143	$128	$71	$124	$67	$33	$127	$45
Other Compensation	$37	$42	$25	$15	$11	$17	$34	$22	$29	$12	$13	$3	$22	$17	$54
Expenses	$4	$11	$218	$4	$2	$3	$6	$3	$3	$24	$8	$1	$31	$4	$5
OCO	$2	$5	$19	$1	$1	$0	$3	$0	$0	$0	$0	$0	$0	$0	$0
Other	$0	$34	$0	$0	$0	$2	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Direct	$143	$276	$479	$77	$59	$89	$125	$169	$161	$108	$145	$72	$85	$148	$105
Total Indirect	$68	$66	$70	$41	$70	$73	$47	$64	$90	$79	$0	$50	$19	$120	$48
Full Cost	$211	$341	$549	$118	$129	$163	$171	$233	$251	$187	$145	$122	$104	$267	$153
Productivity															
SCH per FTE Faculty	989	332	136	738	704	682	546	423	428	443	515	404	1,879	354	288
SCH per FTE Administrator	2,325	2,694	---	5,008	15,239	11,107	1,110	2,619	5,136	1,552	2,338	807	3,758	4,248	1,152
SCH per FTE Support Staff	1,860	927	---	2,072	10,621	1,807	1,910	4,104	2,568	1,552	2,026	1,614	2,147	2,124	5,760
Actual/Capacity SCH	0.87	0.69	0.33	0.73	0.53	0.71	0.98	0.61	0.92	---	1.01	0.50	1.00	0.85	0.67
Expenditures per SCH Index*															
Direct															
Faculty Compensation	101	185	218	56	44	68	83	145	129	72	125	67	33	128	46
Other Compensation	157	179	106	65	48	71	143	94	124	51	55	15	91	72	229
Expenses	17	52	999	17	10	13	27	16	14	112	34	6	140	17	25
OCO	76	236	898	62	46	0	154	0	0	19	0	0	9	0	0
Other	0	1392	0	12	0	96	0	0	0	0	0	0	0	0	0
Total Direct	95	185	321	51	39	60	84	113	108	72	97	48	57	99	70
Total Indirect	113	109	116	68	116	121	77	106	150	130	0	84	32	198	79
Full Cost	101	163	262	56	61	78	82	111	120	89	69	58	50	128	73
Productivity Index*															
SCH per FTE Faculty	167	56	23	125	119	115	92	72	72	75	87	68	318	60	49
SCH per FTE Administrator	58	67	---	125	379	276	28	65	128	39	58	20	95	108	29
SCH per FTE Support Staff	63	32	---	71	362	62	65	140	87	53	69	55	78	78	210

*avg = 100

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Table 7. Masters in Business Administration (cont.)

Expenditures	Overall Average	Public Average	Private Average	Overall Stan. Dev.
Direct				
Faculty Compensation	$300,173	$355,528	$217,142	$189,411
Other Compensation	$85,946	$92,832	$75,618	$82,122
Expenses	$53,077	$25,473	$94,483	$111,552
OCO	$3,834	$5,920	$704	$4,702
Other	$7,166	$11,944	$0	$24,354
Total Direct	$450,196	$491,696	$387,947	$326,650
Total Indirect	$203,796	$236,036	$145,763	$123,446
Full Cost	$640,406	$727,732	$509,416	$421,856
Percent of Direct Exp's				
Faculty Compensation	69.9%	70.6%	68.8%	15.9%
Other Compensation	18.5%	18.2%	18.9%	11.2%
Expenses	9.8%	8.1%	12.2%	13.2%
OCO	0.9%	1.4%	0.1%	1.2%
Other	1.0%	1.7%	0.0%	3.1%
Indirect Exp's as Percent of Full Cost	31.1%	32.2%	29.6%	13.7%
Resources				
FTE Faculty	5.93	6.78	4.65	3.00
FTE Administrators	1.26	1.10	1.51	1.03
FTE Support Staff	1.83	1.76	1.93	1.79
Average Equipment Costs (over three years)	$7,000	$9,639	$3,042	$9,828
Average PT Faculty Salary	$3,625	$3,593	$3,673	$4,025
Average FT Faculty Salary	$42,127	$47,278	$34,402	$9,016
Salary Index (avg = 100)	100.00			
Faculty/Administrators	7.4	9.4	4.7	5.8
Faculty/Support Staff	5.9	5.6	6.4	5.2
Activity Level				
Student Credit Hours-Year	3,822	3,745	3,936	3,594
Student Credit Hours-Fall	1,397	1,579	1,123	1,065
Fall Headcount	256	273	231	185
FT Matriculants--Fall	104	81	139	149
Degrees Awarded	72	60	91	73
Program Capacity	4,538	5,144	3,628	3,973

Table 7. Masters in Business Administration (cont.)

Expenditures per SCH	Overall Average	Public Average	Private Average	Overall Stan. Dev.
Direct				
Faculty Compensation	$99	$113	$78	$52
Other Compensation	$24	$26	$20	$13
Expenses	$22	$28	$12	$53
OCO	$2	$3	$0	$5
Other	$2	$4	$0	$8
Total Direct	$149	$175	$110	$102
Total Indirect	$60	$65	$53	$27
Full Cost	$210	$241	$163	$111
Productivity				
SCH per FTE Faculty	591	553	647	400
SCH per FTE Administrator	3,940	5,027	2,309	3,975
SCH per FTE Support Staff	2,739	2,874	2,537	2,458
Actual/Capacity SCH	0.69	0.71	0.67	0.27
Expenditures per SCH Index*				
Direct				
Faculty Compensation	100	114	79	52
Other Compensation	100	110	85	55
Expenses	100	129	56	243
OCO	100	164	5	223
Other	100	167	0	346
Total Direct	100	117	74	68
Total Indirect	100	109	87	46
Full Cost	100	115	78	53
Productivity Index*				
SCH per FTE Faculty	100	94	110	68
SCH per FTE Administrator	100	128	59	101
SCH per FTE Support Staff	100	105	93	90

*avg = 100

Implications

This cost analysis was designed to provide insights into differences in costs among selected graduate programs in Florida universities, and to indicate potential problems and opportunities for cost analysis of graduate education. The specific findings have been shown in the tables, and some were also highlighted in the accompanying text. What do they suggest first of all for graduate program costs?

They show, as do the data in most such studies, that costs on a credit-hour basis can vary greatly among institutions and among programs within institutions. This is a basic fact of life in higher education and it is unlikely to change anytime soon. The implications are all too obvious. For cost data to be of any value, they must at bottom be program and institution specific. At the same time, the differences in per credit-hour costs are such that the experience of any one institution with a given program is not likely to be a good foundation for estimating the cost of a new program by the same name or to evaluate the cost of such a program offered in a private institution. This would seem to suggest that one ought to depend more on measures of central tendency, such as means and medians, based on data from a number of programs as the foundation for estimating or evaluating costs.

Of course, statistical measures work best when sample sizes are sufficiently large. The averages for the MBA programs around the state have some meaning, and one could envision insisting that institutions receiving public monies ought to be within, say, a standard deviation of the mean or show cause why they are not. When the number of like programs is insufficient to generate meaningful averages, as will often be the case, it might make sense to gather data on programs within the same area of the curriculum as a means of generating more data points. After all, the costs of programs with the same name vary widely anyway, so it does not seem to be inherently wrong to generate estimates that are based on "families" of programs. If this approach has appeal, note that it, in turn, implies ready access to data disaggregated by masters and doctorate levels, and by direct and indirect costs. It would be unreasonable to ask BOR staff to produce data of this volume on an ad hoc basis over and above their regular reporting on costs. Such data would have to become part of their regular analysis to make this approach work.

In addition to data on expenditures per se, the survey contains resource data whose primary purpose is to provide a means of explaining why unit costs are relatively high or low. The reader must judge how useful the data are in any given instance, but it does seem that they lead to at least occasional insights. Faculty are the key typically--their productivity and their rate of pay. It must be emphasized that in recording credit-hour production only a single dimension of faculty activity was tracked, whereas faculty are usually involved in a host of activities. It would be improper therefore to infer that faculty who are relatively unproductive in credit hours are unproductive in an overall sense. Still, if cost per credit hour is the issue, faculty productivity as measured in credit-hour terms is going to be critical. Other aspects of faculty effort could also be surveyed. Research paid for out of the departmental budget would be of particular interest, but considerable background preparation would be needed to decide how to measure this dimension.

Another item of additional data in the survey was an estimate of program capacity in credit-hour terms. In conjunction with data on credit hours actually produced, these data yield utilization rates that can help the analyst understand current costs and the probable direction of future costs. For instance, heavily underutilized programs tend to be expensive on a unit output basis. Additional credit hours in underutilized programs should be relatively less expensive than additional credit hours in programs that are operating at or even beyond capacity, other things being equal. Data on capacity and utilization rates are also useful, obviously, for state planning purposes with respect to program need.

Furthermore, these data provide the basis for at least a crude marginal cost approach to contracting with the private institutions. If a private institution operates an advanced graduate program well under capacity, there is no reason why the state should have to pay average costs per credit hour to obtain enrollment slots in that program. Some lower price ought to be negotiated, reflecting the private institution's costs at the margin. Utilization rates alone cannot yield marginal costs, but they can indicate programs where it would be reasonable to pursue a negotiated price that is less than the institution's average cost.

To the extent that these and the other additional, non-expenditure data help the analyst understand cost behavior, the implication is that they should be considered for inclusion in the data requested to undergird program planning and contracting activities at the state level. One of the points that will be underscored in the second part of this report is the meagerness of the data now made available for these activities. Hopefully, the utility of having more data has been demonstrated by this survey.

Unfortunately, the survey also demonstrates a number of data gathering and reporting problems that threaten the validity and comparability of some of the data shown in Tables 1-7. Evidence of problems comes from the survey data and from the comments that several institutions included upon returning the surveys.

Indirect costs are the most consistent problem. The great variation among institutions in the proportion of full costs attributed to indirect costs is not encouraging. While these variations do not prove that the data are invalid and incomparable, they certainly suggest the possibility. In a few instances, it is clear that the survey data on indirect costs do include items that belong elsewhere. Comments from institutions point out anomalous situations, such as multiple campuses, that can make the allocation of indirect costs more difficult. The clear implication is that additional work must be done on definitions and allocation algorithms before interinstitutional indirect cost data can be trusted. A set of algorithms consistently applied by the institutions would be better than the current situation, even if the algorithms were less than perfect or did not meet everyone's expectations.

A problem that could not be seen in the data, but one that was pointed out in institutional comments, concerns differences in program mission. For example, consider two programs of the same type and size (measured by the number of faculty). Suppose one program has a service role within a larger curricular setting and thus has little difficulty in generating a relatively large amount of credit hours, while the other provides instruction only to students who are part of the program itself. The likely result is relatively low per credit-hour costs for the former compared to the latter program. A situation of this kind, which is not uncommon, creates interpretation problems that can reduce the utility of the comparative data. The cost data are not incorrect, but they can be misleading if used as the basis for estimating the costs of a new program by the same name or evaluating costs at private institutions. A small amount of additional data in the form of an estimate, if not an exact count, of the proportion of credit hours generated by program staff but earned by students outside the program would alleviate the problem.

Another program difference capable of confounding a cost analysis was also alluded to in institutional commentaries, and that was a difference in quality. Low rates of faculty utilization for credit hour production, if not attributable to lack of students but done deliberately, can be an indicator of a commitment to high quality. The same is true for high faculty salaries and large expenditures for equipment and support staff. Of course, these are only suggestive and represent the capacity for, rather than the achievement of, high quality instruction and research. For the most part, cost analyses covering a great many programs cannot be expected to address issues of quality differentials. This is not to say that the issue is unimportant and can be ignored. It can and should be addressed in other components of the information system in the state, and then integrated with cost data to provide a strong foundation for planning and evaluation.

A few expenditure items, such as salaries for adjunct faculty and stipends for graduate students, turned up in strange places in the survey. This kind of problem can be dealt with readily through better, more comprehensive data definitions and survey instructions. The same is probably true for one or two instances where there was some question as to which sources of support ought to be reflected in the expenditure figures. There were also several incongruities in the survey data: personnel with no corresponding expenditures for compensation, expenditures for personnel with no personnel listed; and the absence over several years of expenditures for equipment in programs that one would expect to be equipment intensive. The implication in this case would seem to be that there must be provision within the cost analysis process for iteration. That is, analysts at the state level should be given a clear channel to deal with individuals who provide the cost data. Most such incongruities could probably be cleared up with a phone call.

An encouraging note to end this section: only one of the institutions in the survey expressed concern about being asked to disaggregate costs by level, i.e., to distinguish between masters and doctorate-level programs. Apparently, programs at the two levels have enough distinctiveness in the eyes of most institutional administrators that they do not find it impossible or unnatural to disaggregate resources and costs in this manner. This is fortunate because, as will be discussed in part two below, the state has an interest in cost data broken out by the two levels of graduate instruction.

Part Two

Analysis of Florida's Current Cost Analysis Procedures

There are essentially two ways of assessing the current cost studies of graduate education in Florida. The first, and it is primary, is to determine whether the studies are meeting the needs of the Florida Legislature, executive offices, and higher-education planning agencies. The second is to examine the current effort against the framework of the higher-education cost analyses performed in other states. Both of these perspectives will be addressed in what follows.

State Needs and Current Data

The information needs of the Florida state government regarding higher education at the graduate level are fourfold: 1) to support a needs based appropriation to higher education for current graduate programs in the State University System (SUS); 2) to ensure equity in the allocation of funds to the nine campuses of the university system; 3) to provide a basis for determining and evaluating the costs entailed in purchasing graduate education from private universities in Florida; and 4) to provide a basis for estimating the start-up costs and subsequent costs to continue operating proposed new graduate programs in the SUS.

To meet these needs, there are two primary sources of cost data currently available on a regular basis. One is the annual expenditure analysis done by the BOR staff. The other is data provided on request by BOR staff and by private universities each time the state considers contracting for educational services with the private sector.

BOR Expendidture Analysis. As of the 1983-84 edition, the BOR expenditure analysis contains cost data by level of instruction by discipline by

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institution. The levels of instruction include lower division, upper division, graduate classroom, and thesis/dissertation. The disciplines are shown in the new Classification of Instructional Programs (CIP) format which lists a total of 45 instructional programs. Data are shown for each of the nine public institutions in the SUS, and for three special units. The cost data are in the form of expenditures and expenditures per student credit hour. Institutional expenditures are provided in three forms: educational and general expenditures per program component, instruction and research expenditures per CIP category, and direct instructional expenditures by level of instruction by discipline.

How does this type of cost analysis measure up against the state's need for information about costs? In interviews with a variety of individuals in state government (see Appendix A), several shortcomings were mentioned. In particular, there is considerable frustration with the use of a graduate classroom versus thesis/dissertation breakout rather than the more conventional masters versus doctorate distinction. The primary reason for the concern is that the state's planning, start-up funding, and contracting with the private sector are based on the distinction between masters and doctoral programs. By reporting expenditures in terms of a combined graduate category, the BOR report is much less helpful than it might otherwise be in supporting the planning, funding, and contracting operations.

Another area of concern is the lack of data on full costs (i.e., direct plus indirect). The reason for the concern is similar to the first issue, in that some of the state's investment decisions are best made on the basis of full costs rather than direct costs. The BOR analysis is somewhere in between, as it provides mostly direct-cost data at a high level of detail along with some, more aggregated data on indirect costs.

Concern was also expressed in the interviews about the lack of data on the departmental research component of direct instructional expenditures, and the lack of useful data on equipment costs. The level of program aggregation in the BOR report (the 45 CIP categories) was found to be too high for some planning purposes. In particular, data on already existing programs, which could be useful in estimating the likely costs of proposed new programs, often are lost within the broad CIP categories. The current BOR report format was also faulted for failing to make it possible to assess the presence of inequities in the current funding formula, and for hiding programmatic differences.

A couple of individuals also expressed doubts about the credibility of the current cost data. They questioned whether the institutions were making a good faith effort to fully disclose their costs.

Overall, it is fair to say that the officals and staff of state government who depend on the data in the BOR cost study are not satisfied with it. To this extent, then, the needs of the state are not being met by the current study.

It also became apparent from the interviews that not everyone is fully aware of what the BOR staff can provide within current capabilities. Furthermore there is a computerized information system in place and available to legislative staff; however, it appears to be greatly underused due to lack of familiarity with the system (due in turn to staff turnover).

Contracts with Private Institutions. On occasion the state contracts with private institutions to provide graduate education in a particular field. A cost analysis is done on each such occasion as part of the process of deciding whether to go forward with the contract. The analysis is done by PEPC staff with data provided by the contractor institution and by the BOR staff. The latter provide public institution cost data that are used as benchmarks for evaluating the costs at private institutions.

In order to provide this data, BOR staff must go beyond what is published in their annual expenditure analysis by developing full-cost information for separate masters and doctoral-level programs. Examination of some of the data they have provided suggests that the data are not as reliable as they should be to support the contract evaluation process. The data are also highly aggregated--just total full cost divided by the number of student credit hours is provided. This gives the analyst a vital piece of information, but it also hides useful details that could alert the analyst to data problems and provide insight why costs differ.

Data provided by the private institutions are also quite sparse, at least at the time of the initial evaluation phase. The annual financial reports that record payments to the private institutions contain much more data, but these data are after the fact so far as the initial commitment to these institutions is concerned. In part one, we noted the utility of obtaining data on the extent to which programs in the private sector are underutilized.

It certainly appears, then, that there is not enough data available at the critical planning and evaluation stage of the contracting process. A second, and related, problem is the probable lack of comparability in the data, although one can only guess at the extent of the problem. The instability of some of the data is an indication that incomparability may exist from one measurement to the next at a given institution as well as in measurements of costs among different institutions. Because the data are so highly condensed, it is difficult for the analyst to catch discrepancies in the data and to diagnose why they have occurred.

Cost Analysis in Other States

State systems of higher education differ in significant ways, including how they are coordinated and governed. Not surprisingly, there is also much variation in the kinds of cost data and cost analysis used in state and system offices. Thus, it is not possible to point to a generic form of cost analysis that one could find in all or even most states. A brief synopsis of the basic cost analysis reports in several states will, however, at least illustrate ways in which the BOR expenditure study is similar to as well as different from other approaches. The comparison is limited to regular, periodic reports. As in the case of the BOR, any state agency or system office will have the capability to perform a variety of cost analyses on an ad hoc basis.

Illinois. Each year the Illinois Board of Education conducts a study of State-appropriated expenditures at public universities in Illinois. The core of their analysis is the Discipline Unit Cost Study which provides a detailed analysis of costs for instruction, organized research, and public service. Both direct and full per-credit-hour costs of instruction are examined, at four levels of instruction (lower division, upper division, graduate level 1, and graduate level 2). Full costs of instruction are disaggregated into 13 categories including departmental research. The disciplines are disaggregated into 45 categories using the new CIP structure (the same as in the BOR expenditure analysis).

In recent years, the Illinois board has also been doing a comparative cost study in which each public university's instructional costs per credit hour for each academic discipline and level of instruction are compared to the weighted average for all public universities in Illinois. The report shows the dollars (plus or minus) that the institution would have spent at each of the four levels of instruction had it operated at the system average.

The primary differences between the Florida BOR and Illinois approaches are four-fold: graduate costs in Illinois are disaggregated into masters and doctorate levels; full costs are shown in the Illinois report; costs are disaggregated into a greater number of categories in the Illinois report; and the Illinois comparative analysis shows more clearly the differences in funding levels among the institutions.

Kansas. Approximately every two years, the Kansas Board of Regents conducts a comparative cost study for their six public universities. When disciplines are the unit of analysis, direct instructional costs (including departmental research) are shown by four levels of instruction (lower division, upper division, masters, and doctorate) and 24 discipline categories. When the unit of analysis is the institution, full costs are shown disaggregated into eight categories.

The way in which Kansas carries out its comparative analysis clearly distinguishes it from the Florida approach. Rather than comparing funding levels among the state's institutions, each of the Kansas universities is compared separately to a group of carefully chosen peer institutions from other states. The issue of interest, in this approach, is the relative standing of the Kansas institutions against their peers by major cost category. For example, the University of Kansas may be spending 10 percent less per credit hour for instruction than its peers spend, but may have more physical space available for instructional or research acitivities. Or they may be spending relatively less per credit hour for masters level instruction in engineering but more at the doctoral level.

Kansas probably makes the most extensive use of peer-based cost analysis of any state. Many other states use data on peer institutions as part of the funding process, most often in connection with faculty salaries (for example, Washington, Colorado, Illinois, Tennessee, and Kentucky).

Idaho. Idaho is an example of a state that still uses the cost reporting system developed by the National Center for Higher Education Management Systems (NCHEMS), an approach that was used in Florida during the late 1970s. Idaho's Board of Education conducts an annual study of state appropriated funds at its four public universities. Both direct and full costs of instruction are reported at four levels of instruction (lower division, upper division, graduate I and graduate II) for disciplines aggregated at the 2-digit HEGIS level (24 categories) and at a very detailed level (over 200 categories). Instructional costs are shown per student credit hour and per full-time equivalent student.

Idaho's approach is distinctive for the great amount of detail provided in the discipline cost analysis. Their report also provides a considerable amount of detail with respect to non-instructional expenditure categories. For example, they disaggregate institutional support (general administration) into seven catagories. They also differ from Florida in including data on full costs, and by reporting on four levels of instruction.

Tennessee. The Tennessee Higher Education Commission conducts an instructional cost study every other year in the fall quarter. The study reports on the direct costs of instruction per student credit hour for four levels of instruction (lower division, upper division, masters, and doctorate) for 24 disciplines.

The Tennessee approach is generally quite similar to that taken in Florida's BOR expenditure report. If anything, Tennessee reports slightly less data, except they do disaggregate by four levels of instruction. There are two items worth noting about the way in which the Tennessee Commission reports cost data. They include a few pages of text and tables that summarize major findings and trends. They also make use of graphics to display differences in costs among their institutions.

Implications

The current cost analyses performed by the BOR staff meets much of the state's information needs and is similar in important respects to analyses done in other states. There are, however, significant gaps in the data made available to the Florida state government, especially on a regular (as opposed to ad hoc) basis, with respect both to needed information and to data made available in other states. The primary implication, then, is that some additional cost data are needed.

In contemplating an enhancement of the current system it is useful to keep in mind that an ideal system is liable to be very expensive. Indeed, at some point the information will cost more than it is worth. This is not to suggest that the situation in Florida is approaching such a point. Nonetheless, higher education in Florida is big and complex, with literally thousands of programs in operation. Thus considerable care needs to be taken in building a more ambitious cost analysis capability.

Also, state government is not likely to get all that it might like to have by way of cost information no matter what resources it might be willing to commit to the effort. The reason lies in the softness of the educational process discussed at the beginning of this report. Things simply are not as cut and dried, as separable, as decision makers might like. An all out effort to get at the "real" or "exact" cost of programs is doomed to failure.

The most reasonable strategy to follow is to build on the current system. Two additions to the current BOR annual analysis would be of immediate benefit to several segments of state government: 1) including full-cost data and 2) distinguishing between masters and doctoral-level costs. Neither of these additions are easily accomplished. Determining full costs necessarily involves allocation procedures which in the final analysis are arbitrary. Yet full-cost data are critically important for both the planning process for new programs and the contracting process for obtaining services from the private sector. Other states do it regularly and the BOR staff already does it on demand. If full costs are determined on a regular basis, the opportunity and the motivation will exist to gradually refine, standardize, and otherwise improve the allocation procedures. The result would be data that would be superior to what the BOR staff now generates on an ad hoc basis. The data would also be more timely, and the BOR staff would be relieved of numerous special requests.

Although, as we have seen, other states distinguish between masters and doctoral-level costs, the difficulty of doing so in a meaningful way should not be underestimated. The same courses often serve both masters and doctoral students, course designations can be quite arbitrary, doctoral study is often inextricably linked with research, and so on. Only a concerted effort over time is likely to lead to credible data. Such an effort could include a number of detailed case studies as a means of establishing the most appropriate procedures, consultation with analysts in states that regularly gather this kind of data and the careful preparation of guidelines for institutions to follow in generating the raw data.

It cannot be overemphasized how important it is that these two additions, or any others that might be undertaken, be done well. It was stated above that discovering the "real costs" of a graduate program is not a realizable goal. This should not be taken to mean that a reasonable allocation of costs is impossible, even in the face of joint production and the vagaries of the educational process. Indeed, in the long run there is little choice but to pursue a reasonable representation of costs. It would be a serious problem if higher-education cost data in Florida were to lose their credibility. Already there are inklings of this, as noted earlier. It is important that the situation not be allowed to deteriorate and that it gradually improve over time.

Clearly, all of the parties with a stake in the outcome ought to be involved if significant changes are contemplated. Little will be gained if the state simply issues requests for cost data of a given kind. Such requests must make sense with respect to the realities of how higher education works, and only the involvement of the institutions insures that this will be the case. On the other hand, the state would be irresponsible to simply take whatever data the institutions or the BOR provide, and the mistrust this would lead to would ultimately hurt higher education's ability to maintain adequate state support.

There is one instance where the state ought to ask for more information without further ado, and that is in planning for new programs in the public sector in the Southeast region of the state. At present only minimal data on start-up costs typically are provided. The state needs estimates of the costs to continue operating proposed new programs once started. This would not be an unreasonable request. These data should include figures for the expected number of students, number of faculty, ongoing equipment needs, and other operating expenses for several years after program initiation.

Other data needs were mentioned earlier, such as being able to isolate the costs associated with departmental research, and getting a better handle on equipment costs. These seemed to be of lower immediate priority to this observer, but they point to the need to establish a long-range plan for cost analysis in Florida. Such a plan would not only address issues of new capabilities, but would also deal with maximizing the utility of current capabilities and improving communications between segments of state government and the BOR.

Appendix

Persons Interviewed Regarding the Cost Analysis Project

Pat Barrett, House Appropriations Committee

Linda Collins, Senate Appropriations Committee

Robert Cox, Governor's Office

Michael Armstrong, Postsecondary Education Planning Commission

Thomas Furlong, Postsecondary Education Planning Commission

Linda Recio, Postsecondary Education Planning Commission

George Perkins, Board of Regents Staff

Ronald Stubbs, Board of Regents Staff

Thomas Hanna, Department of Education

William Odom, State Board of Community Colleges

Grady Rea, Florida State University

Graduate Programs Cost Study

Instructions for Completing Survey

I. Expenditures

Complete one survey for each of the programs listed.Include all expenditures except those related to separately budgeted (contracted) research and separately budgeted public service. Distinguish between direct and indirect costs as shown on the survey form.

Direct Cost Allocation. We ask that the appropriate administrator (dean or department head) make the allocation where necessary, as in the case of compensation for faculty who are involved in both instruction and separately budgeted research or who teach in more than one program.

What we refer to as a distinct program, such as a doctoral or a masters program in a particular area, may be treated on your campus as just a part of an overall program be diasaggregated for cost accounting purposes. We realize how difficult this may be, but it is important that it be done to comply with the Legislative charge to obtain comparable program cost data.

The essence of the task for the program administrator is to divide up and assign costs on the basis of the actual demands faculty time devoted to the program be the primary driver for allocating both faculty compensation and the other cost categories--unless relevant information is available on the use of the other resources. We suggest that the administrator develop an estimate of faculty time based on his or her own knowledge of the situation and consultation with the faculty, rather than through a formal faculty activity survey.

Indirect Cost Allocation. Allocate expenditures for academic support, institutional support, student services, and operation and maintenance of the plant on the basis of the number of student credit hours generated by faculty whose compensation is allocated to the program. For example, if such student credit hours total one-fiftieth of the total credit hours generated on the campus, allocate one-fiftieth of the total expenditures for the functions to the program. Items to be included within these functions should follow the NACUBO definitions.

If, as may be the case for law programs, a special library meets most of the needs of the students and faculty in the program, do not include expenditures for the main university library in estimating indirect costs related to the academic support function. Should this condition prevail, please note it on the survey form.

II. Program Personnel and Equipment

Faculty. Indicate the number of faculty in the program during the fall term. The FTE figure should correspond to the faculty time calculations used to allocate expenditures for compensation. For example, if the program has been assigned two-thirds of a faculty member's time for purposes of allocating expenditures, then that same amount of faculty involvement should be included in the FTE figure.

Administrators. We wish to get at the administrative load generated by this program. We ask that the appropriate administrator estimate this amount by allocating the time of those individuals, such as department heads, who have some immediate administrative role in the program. The time of administrators such as the president, the academic vice president or dean, the financial officer, and so on, should not be included.

Support Staff. Include work-study students. (The cost associated with employing these students should be included under "other staff compensation.")

III. Activity Level

Student Credit Hours. Include all student credit hours (in semester hours) for the full year (1984-85) and Fall 1984 generated by faculty whose compensation is allocated to the program.

Program Capacity. Given the level of available resources, estimate the maximum number of student credit hours (in semester hours) that could have been generated during the full year.

IV. Program Description

This section has been designed to obtain additional information that may be helpful in comparing costs for programs of the same general type. Please assist us in gaining an accurate picture of the nature of your programs.

Graduate Programs Cost Study

Survey

Institution Name ______________________________

Institution Contact Name ______________________________

Phone Number ______________________________

Program Name ______________________________

Year of Data July 1, 1984 - June 30, 1985

I. Expenditures

A. Direct

Salaries
Faculty Compensation
Salaries, Wages, Fringe Benefits ________

Administrative and Other Staff
Compensation including OPS
Salaries, Wages, Fringe Benefits ________

Expenses ________
Consumable supplies
Communications (e.g., telephone, postal, printing, reproduction)
Travel

Noncapital Equipment-OCO (Operation Capital Outlay) ________

Special Library (e.g. Law) ________

Other (please specify) ________

TOTAL DIRECT ________

B. Indirect

Academic Support (including main university library) + Institutional Support + Student Services + Operation & Management of Plant ________

Current Negotiated Indirect Cost Rate is _____%
and Base* is ______________________________
*(i.e. sum against which negotiated indirect cost rate is applied--e.g. total direct costs)

II. Program Personnel and Equipment

A. Number of Personnel

FTE Faculty in man years (12 months) __________

FTE Administrators in man years (12 months) __________

FTE Clerical and Other Support Staff in man years (12 months) __________

B. Salary

Average Full time Faculty Salary for 12 months __________

Average Part time Faculty Salary for 12 months __________

C. Equipment

Average Annual Expenditures for Capital Equipment (excluding buildings) Over Last Five Years __________

III. Activity Level

Student Credit Hours (in Semester Hrs.)
Full Year (1984-85) __________
Fall 1984 term __________

Fall 1984 Headcount __________

Number Students enrolled full time in the program Fall term 1984. (Full time Martriculants) __________

Degrees Awarded, Full Year __________

Program Capacity
Student Credit Hours (in Semester Hrs.) for the Full Year (1984-85) __________

IV. Program Description

A. Program Objectives ______________________________

____

____

____

B. Areas of Specialization ___________________________

____

____

C. Degree Requirements ______________________________

____

____

____

____

D. Other Salient Features from a Cost Perspective (e.g. interdisciplinary relationships)

____

____

____

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Appendix C

Occupational Market Demand for Selected Occupations in FLOIS Network

AVERAGE ANNUAL OCCUPATIONAL DEMAND
1985-90
BY DEPARTMENT OF EDUCATION REPORTING REGIONS AND STATE TOTAL FOR SELECTED OCCUPATIONS IN FLOIS NETWORK

OCCUPATION	PANHANDLE	CROWN	EAST CENTRAL	WEST CENTRAL	SOUTH	STATE TOTAL
Accountants/Auditors	243	352	516	795	1,056	2,962
Actuaries		2	1	4	7	14
Architects	18	20	32	47	46	163
Civil Engineers	66	58	78	130	134	466
Clergy	162	236	167	448	254	1,267
Computer Operators	37	59	73	133	185	487
Computer Programmers	35	56	82	139	210	522
Computer System Analysts	25	39	57	92	142	355
Dentists	19	29	38	87	94	267
Dietitians	18	26	32	74	79	229
Economists	6	9	14	17	23	69
Electrical Engineers	59	75	267	218	358	977
Engineers*	95	141	278	307	454	1,275
Financial Analysts		5	4	12	20	41
Judges	18	8	10	16	15	67
Lawyers	101	156	194	357	590	1,398
Librarians	65	72	72	146	168	523
Life & Physical Scientists	76	55	50	124	123	428
Mathematicians	2	5	3	9	17	36
Merchandise Displayers	4	11	14	20	22	71
Nurses	525	740	1,026	2,190	3,247	11,184

Optometrists	4	8	12	21	24	69
Personnel Specialists	42	53	59	110	125	389
Pharmacists	46	58	94	190	203	591
Physicians	80	123	168	371	415	1,157
Podiatrists		2		6	8	16
Psychologists	23	28	29	59	64	203
Public Inspectors/Admin	78	53	46	83	97	357
Public Relations Specialists	32	51	55	106	140	384
Social Scientist	52	74	73	169	221	599
Speech & Hearing Clinicians	13	14	15	34	39	115
Statisticians	4	8	8	14	18	52
Stationary Engineers	17	21	20	35	35	128
Teachers (K-College)	1,404	1,769	1,538	3,226	3,247	11,184
Therapists, Occupational	7	11	13	25	30	86
Therapists, Man Arts, Mus, Rec	4	10	12	25	25	76
Therapists, Physical	20	27	36	82	89	254
Therapists, All Other	12	15	17	41	42	127
Title Inspectors	7	16	14	24	26	87
Urban & Regional Planners	10	8	5	22	21	66
Vocational Education Directors	79	90	84	184	177	614
Veterinarians			5		2	7

* Includes Aeronautical-Astronautical, Chemical, Industrial, Mechanical, Metalic, Mining, Petroleum, Traffic and Nuclear Engineering.

SOURCE: Florida Occupational Information System (FLOIS), October 1985

Appendix D

Market Demand Data Generated Through Program Reviews and New Program Approvals

SOURCE: Board of Regents, October, 1986

MARKET DEMAND ADDRESSED IN PROGRAM REVIEWS

Architecture

Estimates of 40 - 77 percent increase in manpower demand for activities projected by 2000 AD. "In interior design and urban and regional planning, existing programs could probably be expanded, at least in the short term, so as to provide needed growth, but in architecture, landscape architecture, and construction management, new programs appear necessary."

Allied Health

FAMU should "...continue active planning to identify new health career needs..." "The needs of the Miami area (should) be studied to determine if the expansion of present programs and the development of new programs (at FIU) are advisable

Home Economics

No new graduate programs recommended.

SOURCE: Board of Regents, October, 1986

RTC.PROGRAM REVIEW

Visual and Performing Arts

"Three campuses offering the M.F.A. degree credential is a sufficient number for the foreseeable future." "Areas for future development might include the applied arts but only at the highest professional level..."

Library and Archival Science

No new programs recommended.

Philosophy and Religion

Graduate programs recommended for exploration:

1. UF MA in Religion
2. FSU/USF joint PhD in Philosophy

Business Administration

"It is possible that the regions (Tampa, Orlando, and Southeast Florida) will continue to grow so that a comprehensive, research-oriented university with doctoral programs (in business administration) will be reasonable for the three areas."

Physical Sciences

Recommends PhD at UF in Geology, Masters degree in Geology at FIU.

Mathematics and Statistics

UF should "consider the establishment of degree programs in biostatistics..."

Education

Graduate Programs Recommended

- MS in Urban Education at FIU
- MS in International Development Education at FIU.

Law

No new law schools recommended.

Recreation, Parks, and Leisure Studies

No new programs recommended.

MARKET DEMAND SUMMARY OF NEW PROGRAM REQUESTS

04.0201 FIU/UF Master of Architecture

National surveys are cited to support the contention that the demand for architects will be increasing in Florida as well as throughout the nation. Federal projections of employment opportunities for architects in South Florida exceed all other sections of the State (an average increase of 32 per year).

04.0201 FAMU/USF Master's in Architecture

National data are presented which support the contention that demand for graduate architects will exceed supply within a few years. This situation is projected to be fully as serious in Florida as in the nation as a whole. This need is underscored in the 1983 SUS review of architecture and related programs.

04.0601 FIU/UF Master's in Landscape Architecture

The 1983 SUS Program Review of Architecture and Related Programs revealed a need for increasing the output of landscape architects in Florida. A follow-up survey of need received overwhelmingly positive responses.

05.0115 FIU Master's in Hispanic Studies

The Dade County economy is highly dependent on international economic transaction: In 1980, 27% of the total labor force and 30% of the domestic product depended on these transactions. Miami is the focus of international tourism and having knowledge and skills in languages and cultural relations when selling products abroad or hosting international travelers is an important aspect to possess. Florida businesses have expressed a need to have personnel proficient in foreign language skills (particularly Spanish).

06.0401 UCF PhD in Business Administration

Data from a survey conducted by American Assembly of Collegiate Schools of Business reveals critical shortfalls of new doctorates in business. Local support is indicated by letters from businesses and citizens. A special task force addressed the needs for doctoral level programs at the February 14-15, 1985, meeting of the Board of Regents.

SOURCE: Board of Regents, October, 1986

06.0401 USF PhD in Business Administration

A shortage of qualified candidates to assume collegiate level faculty positions is well documented by studies conducted by the American Assembly of Collegiate Schools of Business and by specific discipline related groups such as the American Accounting Association.

09.0101 FAU M.A. in Communications

Dr. Phillip K. Tompkins, Professor of Communication, Purdue University served as consultant to the Board of Regents for reviewing proposal. He states, "Communication is one of the most rapidly growing sectors of academic, economic and political life in America." He supported the need for the program and the analysis of need provided by FAU.

09.0101 UF PhD in Mass Communication

National surveys conducted from 1973 to 1981 indicate an increasing need for doctoral graduates of Journalism/Mass Communication programs and a diminishing enrollment. Enrollment at UF at the master's level has been able to attract an increasing number of students. UF should be able to attract doctoral students to fill national need.

11.0101 UCF/FIU PhD in Computer Science

A manpower study by John Hamblen published in T. H. E. Journal, November 1983 provides evidence of a critical need for doctoral graduates in computer science through the end of this century. Dr. Hamblen served as consultant to the BOR for reviewing proposal for the degree program.

13.0301 FAU/FIU EdD in Curriculum and Instruction, Elementary Education

Market demand is based on local demand and a recommendation by the State Department of Education in 1982.

13.0301 UF M.A. in Recreation Services, Master of Leisure Studies

Consultant to the BOR for reviewing proposal was Professor Louis F. Twardzik, Michigan State University. His needs assessment considered national and state indicators of demand including population, leisure, income, mobility and marketing.

13.1001 FIU/FAU EdD in Exceptional Education

The Florida Department of Education has consistently pinpointed in its annual report Exceptional Education as an "area of critical shortage." Also, Southeast Florida contains two of the largest public school programs in the United States and the "probability of employment within these two systems is strong." The U.S. Department of Education, Office of Special Education has indicated the need for newly trained personnel at the doctoral level in Exceptional Student Education as one of seven priorities in that office.

13.1201 FSU/UWF EdD in Adult Education

U.S. Census studies indicate a growing number of adults are enrolled in some form of systematic instruction (from 17 million in 1975 to more than 20 million in 1980). Also, Florida's growth patterns suggest an even more rapid growth in adult education than the nation as a whole.

13.1206 FAU/FIU PhD in Junior College Teaching

National enrollment in junior and community colleges indicates a need for study of the community college. The leadership position of Florida community colleges in general and Miami-Dade Community College in particular make Southeast Florida an ideal place from a national perspective to locate a research based community college program.

13.1207 FIU MS in Urban Education

Officials and the teacher's union of Dade County have expressed a perceived need for this program.

13.1320 FSU/UWF EdD in Vocational Education

A feasibility study validated that there is a sufficient demand to support an on-going doctoral program for persons in the Pensacola area who are currently employed as vocational educators or training directors in industry or the military.

13.0902 FIU MS in International Development Education

Proceedings of a 1983 regional conference on Educational Planning in Latin America held in Buenos Aires states the need for increasing the technical capacity of those involved in educational planning and for revitalizing the training programs to emphasize technical planning skills. FIU's proposed program is planned to respond to regional and international needs.

14.0801 FIU MS in Civil Engineering

There is a demand for individuals with Master's degrees in Civil Engineering as voiced by engineering employers, public school educators, and persons employed in the electronic industries which are based in the FIU catchment area.

14.0901 FAU M.E. in Computer Engineering

Industry locally and throughout the State will profit from graduates of this program. The FAU catchment area includes a quickly increasing number of high tech firms; such firms would be employers of graduates of this program.

14.1001 FIU MS in Electrical Engineering

The Metro-Dade Area has a continued and expanding need for personnel trained in Electrical Engineering. There is a demand for individuals with a master's degree in the electronic industries.

14.1401 FIU MS in Environmental Engineering

The Metro-Dade Area has an expanding need for Environmental Engineering master's degree among professional engineering firms and related high technology firms.

14.1901 FAU PhD in Mechanical Engineering

The need for graduates at the doctor's level in Mechanical Engineering was studied by Dr. Joe Hogan in relationship to industrial buildup in the FAU service area.

14.2401 FAU PhD in Coastal and Ocean Engineering

Dr. Joe Hogan served as BOR consultant for reviewing proposal. He referred to an established crisis in doctoral engineering education in the United States and supports the statement of need for the program.

14.2401 UF PhD in Coastal and Oceanographic Engineering

Placement of students graduating with Master's degrees in Coastal and Oceanographic Engineering has been good and student demand for a PhD program has been growing based on national interest in growth management and beach erosion. A critical shortage for coastal engineering planners and regulatory agency personnel exists. The demand for faculty and private industry coastal engineers is expected to at least remain as strong as in the past.

18.1101 FSU MS in Nursing

A 1983 Florida PEPC report urges new initiatives in nursing education to include an increase in master's level productivity to respond to a clear need within the state. A large market for a new master's program is projected because a large number of nurses are employed in Northwest Florida, but only a few hold master's degrees.

18.1101 UF PhD in Nursing

Reference is made to a 1982 feasibility study conducted statewide by the University of Florida in which a serious shortage of doctorally prepared nurses was confirmed and a strong interest in the development of a PhD program was expressed. These needs are said to be evident nationally as well.

18.1401 FAMU PhD in Pharmaceutical Sciences

Data from American Association of Colleges of Pharmacy and American Foundation for Pharmaceutical Education are provided to indicate market demand.

18.2201 FIU/UM M.A. Public Health

National reports and groups have documented the shortage of trained personnel in the field of public health. The following groups are mentioned:

° U.S. Department of Health and Human Services ° U.S. Congress ° Institute of Medicine of National Academy of Sciences ° Milbank Memorial Fund Commission on Higher Education for
Public Health ° The Association of Schools for Public Health ° Postsecondary Education Planning Commission of Florida ° Florida Task Force on Public Health Education Planning ° Florida Department of Health and Rehabilitative Services

23.0101 UNF MA in English

The program is designed to serve the local needs of the Jacksonville area to facilitate the professional development needs of FJC faculty and the K-12 English teachers now employed in the area.

24.0101 USF Master's in Liberal Arts

A poll was taken and it was found there is a student population in the Tampa Bay area wanting to participate in the program.

40.0601 UF PhD in Geology

There is a critical need for this program to meet state and national demands for trained specialists to address problems in the fields of land use, energy resources, mineral resources, and the environment.

40.0801 FAU PhD in Physics

Thirty-one percent of the high-technology employment in the State is said to exist in the Broward, Dade, and Palm Beach counties. An AIP survey of graduate students indicates that less than six percent of physics doctoral recipients had reported no job offers immediately upon graduation and many received multiple offers.

40.0801 UCF MS in Applied Physics

The National Science Foundation Report on Research and Development in Industry, 1979 - Survey of Science Resources Series NSF82-304 states that the industrial research and development investments are growing rapidly in the "Sun Belt" including Florida. New research facilities for several large corporations in the Orange county area provide evidence of this growth. The Occupational Overlook Handbook states that between 1980 and 1990, employment of highly trained workers will increase 20-26 percent, and greater energy development and industrial production will contribute to a growing demand for scientists, engineers, et cetera.

42.0101 FAU/FIU PhD in Psychology

There is a need in high tech firms such as IBM, for applied experimental psychologists to aid in the design, development and evaluation of their products. The Miami area has a large new birth growth, immigration from Central and South America and migration of older Floridians, producing different phases of the life-cycle. The program can meet the regional as well as national needs according to the faculty, as there are not many Life-Span Development Programs and none with an urban, multi-cultural basis such as FIU's.

44.0401 FAU/FIU PhD in Public Administration

Based on the 1981 systemwide review of Public Administration, the need for the PhD in Public Administration in Miami was established. Dr. George Frederickson served as BOR consultant to review the proposal and found an adequate demand for the program at the local level to be clear.

45.0501 FSU MS in Demography

Demography is an emerging field with only three universities offering this degree and none are in the South. Information from Georgetown University claims that 95 % of its Master's degree graduates have found employment even in times of high unemployment. Secondly, people with demographic skills have gained employment with little problem in state agencies, many of which are located in Tallahassee.

45.0601 FIU PhD in Economics

Needs for PhD economists have been expressed by academic, banking, business and governmental institutions. The University has a list of 18 institutes of economic and social research within the Caribbean basin with which the Department of Economics has developed relationships in anticipation of informal interchanges on a collaborative basis following initiation of the Ph.D degree program.

50.0703 USF MA in Art History

Strong expressions of support from potential students and majors and a growing number of museums and galleries in the USF area are offered as evidence of growing demand for graduates.

State of Florida
Department of Education
Tallahassee, Florida
Ralph D. Turlington, Commissioner
Affirmative action/equal opportunity employer

FLORIDA: A STATE OF EDUCATIONAL DISTINCTION. "On a statewide average, educational achievement in the State of Florida will equal that of the upper quartile of states within five years, as indicated by commonly accepted criteria of attainment."